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ABSTRACT

Preliminary research testing the reliability and the validity of the "Thinking About My School" (TAMS) instrument is reported, and extensive data and analyses are included for the benefit of those who wish to do further evaluative work. Instructions for scoring and appropriate conditions for administering TAMS to students with low reading skills and little experience with self-report measures are described. TAMS was tried out with approximately 280 students, of which 64, identified as leaders, were studied intensively. The validity of these 64 students' scores was tested by means of self-concept inventories, measures of power, teacher ratings of behavior, sociometrics, formal observations of behavior, and academic achievement scores. The 64 student leaders had been identified by their teachers as either positive or negative in their attitudes toward school. TAMS results confirmed the reported differences. However, it appeared that conclusions about reliability and validity could not be made until the instrument has been used with samples from other populations. (Author)

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Research and Development Memorandum No. 125

"THINKING ABOUT MY SCHOOL" (TAMS): THE DEVELOPMENT OF AN INVENTORY TO MEASURE PUPIL PERCEPTION OF THE ELEMENTARY SCHOOL ENVIRONMENT

Joanne Rand Whitmore

School of Education
Stanford University
Stanford, California

August 1974

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Introductory Statement

The Center's mission is to improve teaching in American schools. Its work is carried out through five programs:

- Teaching Effectiveness
- The Environment for Teaching
- Teaching Students from Low-Income Areas
- Teaching and Linguistic Pluralism
- Exploratory and Related Studies

The TAMS inventory was developed for use in a project on effective reinforcement for achievement behaviors in minority children, a component of the Program on Teaching Effectiveness. The project leader was Pauline S. Sears.

Preface

TAMS was designed to assess student perceptions of persons and events in the elementary school environment. It is considered suitable for students in grades 4, 5, and 6. The results of the inventory provide information on what is commonly regarded as "attitude toward school." At this stage of instrument development, all conclusions based on this preliminary research must be regarded as tentative. The purpose of the memorandum is to assist fellow researchers interested in doing further evaluative research on TAMS. Any use of the scores from TAMS should be cautious and show due regard for the sensitive nature of such self-reports.

This report is one of a series from a three-year project investigating the relationship between teacher behavior and student cognitive and affective achievement. The following is a complete list of materials from this project published, or to be published, by the Stanford Center for Research and Development in Teaching.

Summarizing Reports

Sears, P. S., Bloch, M., Hubner, J., Gamble, J., Adenubi, M., & Crist, J. L. Effective reinforcement for achievement behaviors in disadvantaged children: The first year. (Stanford Center for Research and Development in Teaching, Technical Report No. 30), Stanford University, 1972. (ED 067 442)

Crist, J. L., Marx, R. W., Whitmore, J. R., & Sears, P. S. Effective reinforcement for achievement behaviors in minority children: The second and third years. (Stanford Center for Research and Development in Teaching, Technical Report), Stanford University, forthcoming.

Marx, R. W., & Crist, J. L. Effective reinforcement for achievement behaviors in minority children: Summary of research. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Specific Intervention Techniques

Beckum, L. C. The effect of counseling and reinforcement on behaviors important to the improvement of academic self-concept. (Stanford Center for Research and Development in Teaching, Technical Report No. 38), Stanford University, 1973. (ED 081 880)

Whitmore, J. R. The modification of undesirable attitudes and classroom behavior through constructive use of social power in the school peer culture. (Stanford Center for Research and Development in Teaching, Technical Report No. 36), Stanford University, 1973. (ED 084 489)

Whitmore, J. R. Student leadership: Guidelines for developing programs in distressed low-income elementary schools. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 113), Stanford University, 1973. (ED 083 348)

Whitmore, J. R., Crist, J. L., & Marx, R. W. An experimental in-service teacher education program for distressed elementary schools. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 117), Stanford University, 1974. (ED 087 777)

Test Manuals and Summaries of Instruments

Marx, R. W., Peterson, P., & Nichols, S. Test manual: Sears Self-Concept Inventory. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Sears, P. S., Crist, J. L., & Marx, R. W. The teacher behavior observation schedule: An instrument for coding teachers' classroom interaction. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Sears, P. S., Marx, R. W., & Crist, J. L. Teacher forced ratings: An instrument for assessing children's intellectual, social, emotional, and physical development. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Whitmore, J. R. A teacher attitude inventory: Identifying teacher positions in relation to educational issues and decisions. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 118), Stanford University, 1974.

Whitmore, J. R. "Thinking About My School" (TAMS): The development of an inventory to measure pupil perception of the elementary school environment. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 125), Stanford University, 1974.

Abstract

TAMS is a 47-item inventory designed to measure student perceptions of the school environment. It was constructed for use with fourth, fifth, and sixth grade pupils in a "distressed" school. Subjects respond to statements about their school on a four-point scale ranging from "Not at all" to "All the time." The items are grouped to form four theoretical scales: Power, Social Relations, Work, and Teachers. Additional items assess Liking for School in general.

Preliminary research testing the reliability and the validity of the instrument is reported, and extensive data and analyses are included for the benefit of those who wish to do further evaluative work. Instructions for scoring and appropriate conditions for administering TAMS to students with low reading skills and little experience with self-report measures are described.

TAMS was tried out with approximately 280 students, of which 64, identified as leaders, were studied intensively. The validity of these 64 students' scores was tested by means of self-concept inventories, measures of power, teacher ratings of behavior, sociometrics, formal observations of behavior, and academic achievement scores.

The 64 student leaders had been identified by their teachers as either positive or negative in their attitudes toward school. TAMS results confirmed the reported differences. However, it appeared that conclusions about reliability and validity could not be made until the instrument has been used with samples from other populations.

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"THINKING ABOUT MY SCHOOL" (TAMS): THE DEVELOPMENT OF AN INVENTORY TO MEASURE PUPIL PERCEPTION OF THE ELEMENTARY SCHOOL ENVIRONMENT

Joanne Rand Whitmore

"Thinking About My School" (TAMS) is a questionnaire of 47 items designed to measure student perception of the school environment. It was constructed for immediate use with pupils in grades 4, 5, and 6 in a low socioeconomic status (SES), predominantly black community as part of an ongoing research project. In the phase of the project for which TAMS was constructed, four researchers worked for a year with the entire staff of a "distressed" elementary school to help bring about environmental changes desired by both teachers and students. Information about the overall project has been included wherever it seemed necessary for understanding the development of the instrument and the evaluation of the experimental results (see also Crist, Marx, Whitmore, & Sears, forthcoming).

This report is intended to provide other researchers with information and data pertaining to the development and initial use of TAMS. Because of the limited nature of the sample and the possible influences of the year-long intervention mentioned above, all results reported must be regarded as preliminary and the interpretations given must be considered very tentative. Nevertheless the results presented here will be useful in further research using the inventory.

Purposes of the Inventory

There were two sets of purposes motivating the author to construct TAMS. One pertained specifically to the immediate research needs of the project staff. The other was related to needs of future educational research. Both will be briefly described.

The author is now Assistant Professor of Psychology at Peabody College for Teachers in Nashville, Tennessee.

The project staff wanted a measure of student attitudes toward school for three uses: (1) as a tool for providing teachers with objective information on pupil perceptions and attitudes, (2) as a measure of change in pupil perceptions and attitudes over the year of the project intervention, and (3) for exploratory research into relationships between teacher behavior and pupil attitudes.

The school in which the project was conducted had about 700 students (99 percent black) and 26 members of the school faculty and administration (about 75 percent white). The school might be called "distressed" because teachers and pupils freely complained that tensions and conflict tended to dominate the school climate, especially in the higher grades. This atmosphere was attributed by adults to the "misbehavior" and "negative attitudes" of many students, both of which necessitated the continual use of "tight controls" and frequently harsh disciplinary action. There was an obvious lack of positive reinforcement and personal communication between teachers and children. Teachers expressed extreme frustration, which stemmed from their ill success in motivating interest in learning and desirable classroom behavior. Students seemed to find social interaction with peers during class time the most meaningful and rewarding behavior.

The teachers and administrators in this school wanted to spend less time disciplining and more time teaching those pupils who were responsive and willing to put forth effort. The assistance of the project staff for one year was offered and was accepted. The basic design of the intervention was for the researchers to engage the school staff in improving the teaching-learning environment through a problem-solving approach, and to provide both information and training experiences to develop the skills that would be needed to bring about the changes that were desired. The major emphasis was upon understanding possible causes of behavior and developing teaching strategies for effectively altering student behavior. A week-long workshop was held before the fall school term began. During it intensive problem solving occurred, culminating in the establishment of goals for the year. Weekly group problem-solving sessions were held during the year, evaluating progress and modifying plans and programs.

In preparation for the August workshop, the researchers gathered data about teacher and pupil perceptions of school experiences. Two months were spent in informal conversations and interviews with adults and children in the school, collecting opinions and statements of feelings. Intermediate-grade students were interviewed on videotape in random groups of four, and the most informative portions of these tapes were selected for use in the workshop to stimulate and assist teacher problem solving. Some method of objectively reporting the views of all intermediate students also was needed. It was for this purpose that TAMS was constructed and administered in the spring preceding the project year. When the students' responses had been tabulated, the school staff was presented bar graphs showing the number of intermediate students giving each type of response on the 47 items in the TAMS questionnaire.

When the project intervention began, the research staff proposed using TAMS along with classroom observations of pupil behavior to evaluate the school's progress toward the goal of improving students' attitudes and behavior. The proposal was accepted, and the data were collected in the fall and again in the spring as a measure of change during the year.

Self-reports on TAMS were also used in analyzing the effects of leadership experiences upon individual students. A student leadership program was implemented as an adjunct to the teacher in-service education project just described (see Whitmore, 1973 a & b). Students who were perceived by their teachers as influential with peers and either positive or negative in attitude toward school experiences were selected for participation in a Leadership Council. TAMS scores were used to determine whether participation as leaders in projects to improve the school significantly influenced individual perceptions of the school environment. Some of the results will be presented below.

Members of the project staff were interested in the relationships between teacher behavior and pupil behavior and attitudes toward school. Students below fourth grade did not appear to be capable of responding to self-report inventories with sufficient accuracy. Therefore, the use of TAMS and other attitude measures was restricted to approximately 280 intermediate students. During the year, the eight intermediate

teachers regrouped some students and teachers for math and, in some cases, other subjects. As a result, an adequate analysis of relationships between teacher behavior and pupil reported attitudes was not possible.

TAMS was constructed with some future uses, as well as the immediate needs of the project, in mind. It was foreseen that TAMS might be used to produce information in the following three areas of study: (1) the relationship between behavior and self-reported attitudes of individuals, (2) the relationship between teacher behavior and pupil attitudes, and (3) the relationship between interpersonal conditions in the school and student attitudes toward school. These areas include the following pertinent research questions:

> What pupil perceptions of the school environment are significantly related to the behavior of "problem kids" in the "distressed" school--individuals labeled "disruptive," "rebellious," or generally "negative"?
>
> In schools frequently labeled "ghetto," "low-income," or "minority," which pupil perceptions of the school environment are most highly correlated with type of classroom behavior: perceptions of teacher behavior? peer behavior? quality of schoolwork?
>
> How do perceptions of students differ between contrasting types of schools and communities--"distressed" as compared to more harmonious and productive schools? low-SES compared to middle-class schools? black as compared to white student groups?
>
> What happens to student attitudes toward school over the experiences of a school year in varying types of situations?

Development of the Inventory

Relevant Research

Much educational research has been based on the assumption that attitudes toward school experiences are significantly related to classroom behavior, and thus ultimately to scholastic achievement. Although in several periods of American educational history educators have given serious attention to "the whole child," including the development of mental health and desirable attitudes, there is a surprising lack of reported research on measuring student attitudes. Only recently have they become the focus of systematic inquiry, and few instruments exist

for assessing them. This situation can be accounted for in part by measurement problems and disappointing results with instruments.

A search of the literature revealed several studies having much in common with this one. Glick's (1970) analysis of sixth graders' attitudes toward school and interpersonal conditions in the classroom dealt with similar questions about social factors which influence attitudes toward school. His study, however, did not include teachers as part of the interpersonal conditions influencing students.

The studies of Flanders, Morrison, and Brode (1968) and Buys (1972) measured the effect of teacher reinforcement behavior upon student attitudes. Flanders used the Michigan Student Questionnaire. His factor analysis of the results indicated that the most important factor was teacher attractiveness; factors of secondary importance were teacher competence, fairness, and lack of pupil anxiety. Questions pertaining to peer relations were not included.

Buys's study was reported after this SCRDT project was completed in June 1972. The Child Attitude Scale includes factors very similar to those in TAMS, with the exception of attitude toward gym and recess. If that inventory had been available at the time this project was begun, it might have been considered for adaptation and use.

Three other studies contributed measurably to the development of TAMS. The first was Rizzo's (1970) Perceived Environment Profile (PEP) for secondary students, which encouraged the author to approach the measurement of attitude through perception of the environment. PEP items were intended to determine the individual's perceptions of persons and events in school life, measuring what Rizzo called "environmental press." It appeared, from Rizzo's work, that the measurement of pupil perceptions was the most accurate measure of "attitudes" because the items could be tied to explicit behaviors.

The second study was by Roshal, Frieze, and Wood (1971), who reported a multitrait-multimethod validation of measures of student attitudes toward school, learning, and technology. The design of the study represents the type recommended in future research with TAMS. In that study data were gathered for a multitrait-multimethod design.

The third influential study was reported by Lunn (1969) in the British Journal of Educational Psychology. Lunn's method of scale construction was similar to that used with TAMS. Lunn empirically derived scales to measure attitudes toward school from statements made by junior school children (ages 9-11) in group discussions. The participating children were those for whom the scales were intended to be used. Lunn claimed that this method assured content validity and meaningfulness in the particular population. Factor analyses and scalogram analyses refined the scales and intercorrelations of scales with each other, and external data further established validity.

Requirements of the New Instrument

The sample for which the instrument was intended was students nine to twelve years old in a low-SES black community. The school they attended was "distressed"--i.e., teacher-pupil interaction was mutually negative in reinforcement for many individuals and expectations of success were generally low.

In order to maximize accuracy and minimize response errors, the three interrelated determinants of responses--subject characteristics, structure and content of the measuring instrument, and the circumstances of assessment--were carefully studied (see Scott, 1968).

Three subject characteristics had to be considered in relation to a questionnaire. First, results of state-administered annual achievement tests indicated that a large percentage of the students were reading below grade level in the last three years of elementary school. Second, many students evidenced a low power of concentration on tasks involving reading or writing (the eventual administration of TAMS was complicated by difficulty in gaining and sustaining attention). Third, according to the teachers, the students had a "lack of interest" in completing tasks of no obvious personal value to themselves. In order to reduce the response error resulting from these subject characteristics, it was determined that items should be comprised of very simple statements, short and using words for which common understanding of meaning was relatively assured. It was also decided that the directions should be simple, and

that the examiner should read the items when the instrument was being administered to a group, in order to help subjects who had difficulty reading. The problems of lack of interest and concentration were to be minimized by using items with salient interest, value, and meaning. This would be accomplished through the use of items drawn from interviews with students, which reflected matters about which they felt a concern.

The structure of the inventory also had to be simple. The ability of students to evaluate items and respond on a Likert-type scale was carefully considered. Students were totally inexperienced with the type of thought process required by self-report instruments. Ambiguous items would have to be avoided by using as many behavioral statements as possible: for example, "Grown-ups at school listen to the ideas of kids." A true-false format was rejected because of the tendency for a response set to operate--either acquiescence (tendency to respond "yes") or extremity ("yes" or "no"). The scale with the least potential error was determined to be one based upon the relative frequency with which behaviors or events occur.

Several aspects of the circumstances in the school setting were apt to influence the accuracy of responses on questions about school life. The strong authoritarianism of adults in the school would have to be counteracted to reduce students' fears about giving responses regarding teachers. Fear of personal retribution could be reduced by guaranteeing confidentiality and by the use of statements pertaining to general circumstances--e.g., "teachers in this school," instead of "my teacher."

Because of these potential sources of error in measuring pupil attitude within this school population, it was decided that a specific instrument should be designed which would be meaningful to these students, simple in structure and vocabulary, and addressed to problems of interest to the students as well as the researchers. Such an instrument was expected to provide the most accurate method of attitude assessment.

Item and Scale Construction

Statements made by students in informal small-group interviews and discussions of school life were compiled in an extensive list. From

that list items were selected by the investigator and colleagues to represent specific and significant ways in which students might perceive the school environment of people and events. The researchers were careful to include statements for which minimal response error was expected.

Most of the statements pertained to five elements influencing feelings about school life: peer relations and the general social atmosphere of the peer culture; teachers and administrators; assigned class work; power to influence events, or opportunities to share in decision making; and general feelings about attending school. From the original list of statements, 47 were selected as clearest in meaning and of greatest value. The items were clustered to form four theoretical scales of eight items each--Power, Social (peer relations), Work, and Teachers--a five-item scale of Liking for School, and ten miscellaneous statements that were regarded as valuable but not as belonging clearly to one of the scales. Ultimate retention or exclusion of miscellaneous items would depend on subsequent item-to-scale correlations and factor analyses.

A number of steps were taken to minimize extraneous determinants of responses. To counteract an acquiescence response set, 13 of the 47 items were negative statements. A four-point scale was chosen to allow greater measurement of response magnitude but also to allow identification of an extremity response set. Several pairs of items with the same intended meaning were included to check on item clarity and respondent accuracy and consistency. TAMS was intended to be sufficiently long to allow adequate testing of reliability and yet not so long as to increase error produced by fatigue or loss of interest.

Administration and Scoring

Testing Conditions

In addition to minimizing extraneous determinants of subject responses through careful instrument construction, one can establish conditions for the administration of the instrument that will increase or decrease response error. Optimal conditions are created by establishing adequate rapport with the subjects. The examiner should assure the

respondents that their participation is important, that their responses will be confidential (known only to the examiner), and that their honest opinions are wanted (not what they think others would say). The establishment of rapport is an essential part of data collection. Detailed guides to achieving it are almost impossible to provide because successful implementation depends primarily upon the human relations skills of the examiner, and on his or her familiarity with the culture of the respondents (Scott, 1968). The conditions of administration and the rapport established should be evaluated along with the results.

In addition to the above-mentioned elements of establishing rapport, it is very important that the subjects understand the purpose of the examiner in administering the questionnaire to their group. Disguising the general purpose is not recommended. In fact, understanding of the purpose is vital to the development of motivation to cooperate by responding honestly. If the purpose is seen as providing some benefit to the students, interest and motivation to contribute responsibly will be increased. In this initial study, the purpose was to gather opinions from the students about how the school could be improved. Individual scores were to be available only to the examiner, but compiled responses to each item were to be studied (eventually) by a council of student leaders.

Certainly one of the most seriously threatening sources of response error was in the comprehension of directions by students. Responding to statements referring to events or feelings by marking the general frequency of occurrence was seemingly a new experience for all subjects in this sample. It was clearly important for the administrators to give sufficient practice and examples so that students understood the way to mark the scale. Sample exercises are included in the Directions for the Administration of the TAMS Inventory (p. 10). In some classes, additional examples were necessary. Actual practice in marking responses to a sample statement on the blackboard was essential. Transfer and generalizability of the concept of scaled responses from a few examples is a source of error for which no adequate method of reduction is known. Ideally, practice with the use of such scaled responses should be given the stu-

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Directions for the Administration of the TAMS Inventory

You have seen us around the school and some of you have had a chance to talk to us and become friends. We are from Stanford and we are studying how students feel and think about their school. We believe students have good ideas and their opinions are very important. We think very carefully about how students answer the questions we ask, and we try to figure out ways that schools could be improved to become better places to learn and to enjoy yourselves.

Do you remember the questionnaire we gave you last year? It looked like this. (Show them.) Who remembers what a questionnaire does? (That is right. It comes from the word "question." It asks questions.) We would like to have a chance to talk to each one of you to find out your ideas, but since we cannot, we have put the questions on paper for you to write your answers on. Some of you will also have a chance to talk to us about some of your ideas.

We are asking you to put your name on your questionnaire just to be sure we can find you if we want to talk to you. Your teacher, the principal, and other people working in the school will not know how you answered. Only we will know. Later we will tell you how most of the kids in this school answered the questions.

This is a serious chance you have to help change schools for the better. It is very important to us to know what you think and to be sure you understand what we are asking in the question. In order to be sure everyone understands the meaning of the questions, we will do this together, reading each sentence together. Please do not rush ahead. Wait to think carefully about each question as we read it. Okay? (Pass out questionnaires.)

There are many statements about experiences you have at school. By each sentence there are four possible answers: NOT AT ALL, ONCE IN A WHILE, OFTEN, and ALWAYS. Let's be sure each answer is clear to you because you are to choose the one answer best describing how you feel.

For example: If the sentence read, "The kids wear swimsuits to school," what would the answer be? (That is right, NOT AT ALL, because no one ever wears just a swimsuit to school.)

Suppose the sentence was, "The bell rings to tell us when the recess begins and ends." What would be the best answer? (That is right, ALWAYS, because the bells always ring to signal the beginning and end of recess.)

If the sentence was, "We have hot dogs in the cafeteria for lunch," what would be the best answer? (That's right, ONCE IN A WHILE.) Suppose the sentence was, "We have hard tests to take." (The response might be any of the four, though it would probably be ONCE IN A WHILE or OFTEN, because it would depend on what each person thought was hard. That is an opinion.)

There is no right or wrong answer. What is right is whatever best describes the way you usually feel about the statement. It is important that you think carefully and mark the best answer as best you can. Are there any questions?

READ THE QUESTIONS ALOUD, ONE AT A TIME, ALLOWING TIME TO ANSWER.

dents over a period of weeks before completing the questionnaire. (Test-taking skills in general need to be practiced in the type of student population for which TAMS was designed.)

When student skills for test-taking are weak, instruments should be administered in small groups. In this study small groups were also advisable in light of the disruptive behavior of some youngsters in each classroom. However, since students had been taken from the classroom for other testing involved in the larger research project, it was necessary to administer TAMS in classroom groups averaging 34 in number. Generally, the students responded favorably, and problems with uncooperative or disruptive students were few. Two researchers worked together, one giving the directions and reading the statements and one helping children who were confused or lost or marking all responses the same. A critical condition was the absence of the teacher. It increased the freedom of students to report honest perceptions of teachers and schoolwork.

To summarize, it is possible to establish conditions for the administration of the inventory that can minimize extraneous determinants of responses. The following procedures are recommended:

1. Establish rapport with the subjects. Communicate that you like them, you enjoy what you are doing, and you are relaxed and happy. This requires knowing your subjects--especially their culture and their school experiences.
2. Explain to the subjects the purpose of TAMS scores and exactly why their participation is important and will benefit them. Explain that scores from all the intermediate classes (not individuals) will be used to study how the school can be improved.
3. Guarantee confidentiality. Ask for the students' names for your use only, perhaps to contact them for further ideas or help.
4. Encourage the students to think carefully but fairly quickly about their feelings and opinions. Stress that their responses are to represent their personal opinions, not what they think others would say or would necessarily want them to say.
5. Give sufficient practice in responding to sample items that the students feel comfortable completing the questionnaire.
6. Explain that the students' opinions are so important that we want to help them mark answers that tell their true feelings. Therefore, an examiner will read each item and will go fairly slowly to allow each person to think carefully about each

statement. Suggest that if students are not certain of the meaning of a word or statement they should raise their hand and the examiner will try to clarify it for them. It will probably be necessary several times during the administration period to remind the students to stay with the reader of the items. Emphasize that careful thought is most important, not speed in completing the questionnaire.

7. Be sure that the teacher is absent from the classroom throughout the entire testing period.

8. Administer TAMS in groups of 12 to 16, if possible. If larger groups are unavoidable, have two examiners present so that one can monitor student problems of confusion or carelessness.

Materials and Time Required

TAMS consists of four pages. It is recommended that the subjects mark their answers directly on the test pages. Certainly in the type of population involved in this study, the use of IBM scoring sheets would be expected to increase the number of errors drastically. Pencils and erasers are the only other materials needed, though strips of colored paper to use as place-keepers (by placing them under each item and row of responses) are helpful.

Although TAMS can be completed comfortably in 30 minutes, an additional 15 to 30 minutes allows more relaxation and flexibility. For example, more practice items can be used, as needed, and students' questions about the use of the results can be answered. Examiners should also watch for signs of fatigue. A flexible schedule allows rest breaks in the middle, which may be especially important to a group of students low in reading ability.

Scoring

At this preliminary stage of development, no scoring template has been designed. However, hand scoring is not difficult. The recommended steps are outlined below.

1. Place the subject's number identification and the time of testing at the top of the inventory.

2. Circle the numbers of the items that are to be reverse-scored: 6, 10, 15, 19, 20, 25, 26, 31, 32, 39, 42, 44.

3. Mark the response score for each item in the margin of the questionnaire. On items not reversed, a mark in the first column ("Not at all") is a score of 1; "Once in a while" is a score of 2; "Often" is a score of 3; and "All the time" is a score of 4. On reversed items, the scoring is opposite: column four gets a score of 1, column three gets a score of 2, etc.
4. Add the total score per page and then for the total 47 items, if desired.
5. Transfer item scores to coding sheets for card punching and computer analyses.

It may appear to the reader that it would be more efficient to mark the scores directly on the coding sheets, but wherever reverse scoring and scaled responses are used, error can easily be introduced through scoring procedures. The procedure outlined above allows for easy checking for error by matching subject scores listed by the computer with the original scored inventories. A secondary value is that time is saved should the punched cards or coding sheets be lost.

During the scoring of inventories, subjects whose responses evidence much error should be dropped. Obviously invalid inventories include those with responses consistently in one column, more than one response to several items, or responses made in some pattern unrelated to item content (e.g., marks made to form a zigzag pattern down the page). Some subjects may be excluded for reasons of missing data. A commonly used guideline is a limit of no more than 5 percent of the responses missing. However, if a large amount of data has been collected, a more stringent cut-off point might be desired.

Interpretation of the Scores

It was intended that the higher a subject's score, the more positive and desirable was the set of perceptions (or attitude) of the respondent toward the aspects of school life represented in the items. The total score was expected to reflect a general attitude toward school.

At this stage of instrument development and testing, definitive interpretations of specific subscale scores are impossible, since norms, standard error of measurement, and adequate validation data have not been obtained. The hypothesized interpretations are based on whether

scores suggest that a subject or group tends to have a lesser, average, or greater amount of an attitude or perceptual set than others in a school or comparable population. For example, higher scores on the Power subscale would indicate a greater than average sense of power or ability to influence persons and events in the school environment. Similarly, scores on the Social subscale would suggest the amount of favorable perceptions of peers; the Teachers and Work scales would measure the relative degree of positivism or liking regarding teachers and schoolwork. The Liking for School subscale would indicate how the subject's enthusiasm or liking for attending school compared to that of other students. All interpretations must be regarded as tentative or speculative until verified by additional research.

Preliminary Testing of TAMS

The Subjects

The population and school setting from which the sample was drawn have been described above. Briefly, the subjects were black boys and girls attending grades 4, 5, and 6 in a low-SES community.

The testing of the instrument was accomplished at two levels: a large group of over 200 students, and a small group of 64 peer group leaders who were more intensively studied. Results from both groups are reported. TAMS was administered to all 280 students in the intermediate grades in the spring of 1971, as a pilot use of the inventory to assess its worth as well as to gather data for the teachers' fall pre-school workshop. In October and February of the 1971-72 school year, TAMS was again given to all intermediate students. Owing to decreased enrollment in the fourth grade, the group then included only about 250 subjects. Each time, 20 to 30 subjects had to be dropped because of unusable self-reports. Thus, there were usable data on 215 subjects in the fall of 1971 and on 197 subjects in the winter of 1972.

The study of the 64 student leaders allowed intensive study of individuals. Most of the TAMS validity data presently available were

gathered on these subjects. The student leaders were not a random sample from the student population, but a select group who were chosen by their teachers on the basis of defined leadership behavior--i.e., they were perceived by their teachers as able to influence the behavior of classmates. The leaders were of two types: those generally positive toward school and cooperative with the teacher's plans (Positives), and those usually negative in attitude and disruptive in classroom behavior (Negatives). The results obtained from this sample of subjects can only be used to speculate about potential outcomes of further validation research on TAMS.

Reliability Data

Inter-item correlations. Item scores were used for 163 subjects for which both fall 1971 and winter 1972 inventories were completed without any missing responses. Table 1 presents the inter-item correlations for fall results (above the diagonal) and winter results (below the diagonal) so that they can be compared. In addition it shows the correlations between paired items intended to measure the same perception or feeling.

The table shows a relatively large number of negative r's, near-zero r's, and correlations between .20 and .40. This variation in correlations suggests the existence of clusters of items formulating factors--in other words, that more than one attribute is being measured by the items on TAMS. This evidence restricts the usefulness of a total score, since such a score would not be representative of a general attitude but would be a composite measure of several more specific attitudes.

Table 2 reports correlations for items paired for similarity of meaning. The correlations in Table 2 are disappointingly low. If the two items comprising each pair did in fact ask the same basic question of the subject, then a serious possibility of random or careless responses is suggested. A possible explanation for the low correlations between paired items is a response set or error related to negative statements. The pairs with the highest correlations usually involve two positive

Table 1

Inter-Item Correlation Matrix

Scale	Item	1	2	3	4	5	6	7	8	9	10
Liking	1		.48	.69	.34	.08	.05	.14	.14	.05	-.05
Liking	2	.22		.13	.07	.04	.00	.16	.29	.02	-.08
Teachers	3	.14	.29		.08	.08	.04	.02	.10	.09	-.06
Social	4	.23	.14	.17		.04	.04	.18	.20	.02	.00
Power	5	.11	.23	.25	.06		.07	.11	.17	.02	-.01
Work	6	.05	.05	.04	.13	.01		-.02	.04	.11	.01
Liking	7	.36	.20	.28	.27	.29	.23		.04	-.02	-.08
Power	8	.18	.27	.30	.29	.28	.08	.23		.13	.03
Power	9	.09	.22	.23	-.07	.19	.15	.09	.08		-.05
Social	10	-.14	-.02	.04	.14	-.04	.08	-.11	.05	-.03	
Teachers	11	.12	.01	.16	.16	-.02	.00	.08	.24	.03	.13
	12	.27	.23	.15	.15	.25	.07	.16	.19	.18	.12
Power	13	.13	.00	.05	.16	.20	.05	.04	.25	.29	.07
Social	14	.09	.18	.29	.21	.14	-.01	.40	.19	.11	-.14
Social	15	.15	.09	.01	-.12	-.07	.26	.10	.10	.04	.16
Teachers	16	.17	.34	.34	.02	.26	.10	.20	.33	.24	-.01
	17	.17	.13	.23	.14	.17	.22	.27	.19	.07	.08
Social	18	.12	.08	.03	.06	.14	.09	.20	.09	.08	-.03
Power	19	.09	-.22	.10	-.08	-.16	.06	-.04	-.28	-.07	.12
Teachers	20	.04	.19	.25	.07	.17	.27	.08	.19	.09	.16
Liking	21	.28	.23	.19	.13	.16	.14	.47	.18	.14	-.01
Teachers	22	.12	.19	.31	.09	.24	-.02	.16	.18	.07	-.07
	23	.07	.20	.16	-.02	.27	.01	.05	.11	.20	.06
Power	24	-.03	.06	-.05	.04	-.07	.01	.05	-.13	.03	-.10
	25	-.05	.09	-.02	-.06	.02	.06	.03	.04	-.05	.04
Work	26	.18	.10	.23	-.10	.13	-.01	.07	.17	.07	.26
	27	.05	.07	.04	-.03	.05	.02	.11	-.04	.17	-.10
	28	.28	.21	.30	.09	.19	.12	.15	.19	.19	.01
Social	29	.01	.13	.15	.05	.15	-.02	.11	.12	.12	.29
Work	30	.18	.27	.25	-.01	.09	-.04	.13	.07	.09	.04
Power	31	.04	-.06	.00	-.11	.08	-.06	-.11	.06	.05	.02
Social	32	-.04	.10	.05	.09	.08	.11	.00	.12	-.06	.07
Work	33	.15	.16	.18	.18	.00	.17	.10	.04	.18	-.08
Work	34	.32	.27	.28	.14	.19	.05	.28	.24	.22	-.01
Teachers	35	.16	.24	.26	.11	.11	.13	.24	.21	.06	.02
Teachers	36	.11	.13	.16	.10	.11	-.01	.11	.06	.25	-.10
Work	37	.25	.26	.19	.05	.16	-.06	.09	.20	.23	-.13
Teachers	38	.14	.02	.02	.06	.02	-.02	-.03	.03	-.27	.12
	39	.10	.12	.17	.02	.14	.18	.06	.23	.19	.26
	40	.18	.28	.30	.07	.25	.00	.14	.32	.30	.01
Power	41	.08	.10	.18	-.15	.22	.03	.04	.06	.12	-.16
Social	42	.18	.03	.06	.04	.07	.08	.11	.13	.08	.14
Work	43	.15	.20	.27	.17	.08	.10	.17	.18	.20	.03
Liking	44	.22	.35	.20	.09	.13	.10	.20	.20	.12	.09
	45	.22	.16	.16	.13	.28	.03	.19	.13	.18	-.05
	46	.14	.15	.16	.04	.19	.27	.32	.17	.33	-.05
Work	47	.33	.17	.33	.22	.24	.14	.26	.34	.28	.00

N = 163. Critical values of the correlation coefficient, df = 100.
.16, p = .05 .23, p = .01

11	12	13	14	15	16	17	18	19	20	21	22	23	24
-.09	.20	.17	.09	.07	.22	.18	.17	.04	.12	.08	.10	.12	.05
.14	.28	.24	.24	.12	.18	.20	.03	-.07	.09	.00	.08	.25	.13
.27	.27	.18	.05	-.02	.23	.12	.12	-.07	.03	.06	.27	.19	.15
.03	.18	.18	.03	.09	.09	.19	.16	-.07	.00	.09	.05	.08	.04
.18	.18	.15	.27	.03	.17	.12	.16	-.01	-.09	.03	.07	.06	-.05
.01	-.03	.03	.21	.13	.02	-.06	.17	.02	.24	.14	-.07	-.01	.05
.16	.17	.07	.18	.00	.22	.25	.27	.00	-.03	.24	.23	.19	-.04
.18	.19	.23	.18	.11	.23	.16	.10	.02	.07	.01	.02	.13	.12
.03	.03	.06	.13	.05	.14	.07	.12	.02	-.07	-.02	.10	-.08	-.24
.04	.06	-.01	-.04	-.02	-.07	-.03	-.11	.16	.06	-.01	.01	-.03	.02
	.23	.18	.08	-.03	.12	.17	.15	.02	-.07	.03	.16	.18	.06
.15		.14	.10	.13	.19	.26	.18	.05	.09	.09	.27	.29	.16
.09	.28		.22	.08	.24	.21	.09	.00	.09	-.01	.04	.16	.06
.08	.02	-.02		.17	.33	.15	.11	.01	.02	.00	.07	.20	.05
.00	-.08	.02	.10		.02	.11	.03	-.06	.06	.16	-.04	.18	.07
.07	.26	.23	.17	.15		.17	.09	.02	.16	.09	.08	.10	.00
.25	.14	-.03	.14	.16	.08		.15	-.02	-.04	.15	.25	.03	-.04
.09	.28	.00	.17	.09	.14	.02		-.14	-.18	.14	.17	.02	-.12
-.01	-.05	-.01	-.01	.20	.01	-.11	-.05		.15	-.02	-.05	.01	.02
.16	.25	.17	.04	.09	.15	.06	.10	-.12		-.03	.07	.04	.13
.02	.29	.09	.09	.05	.23	.16	.24	-.03	.19		.02	.02	-.13
.19	.27	.25	.17	-.08	.31	.15	.28	-.18	.16	.09		.14	.01
.04	.46	.26	.04	-.07	.41	.01	.26	.03	.22	.04	.27		.11
-.04	-.09	.02	-.05	-.05	.02	.06	.03	-.01	-.21	.06	-.04	-.02	
-.13	-.09	-.16	.12	.18	-.04	.17	.03	.07	-.07	-.13	-.20	.03	-.09
-.05	.29	.10	-.02	.05	.22	.15	.29	.01	.34	.22	.20	.26	.15
.11	.13	.21	.06	.02	.21	-.03	.14	.10	-.03	.16	.22	.05	.19
.09	.17	.08	.05	-.02	.24	.02	.01	.07	.20	.09	.14	.15	-.09
.07	.14	-.03	.05	-.05	.00	.18	.10	-.18	.07	.17	.12	.00	.03
.15	.27	.18	.24	.11	.23	.12	.15	-.08	.31	.28	.25	.19	.00
.03	.01	.04	-.10	-.07	.00	-.04	-.12	.05	.05	-.05	-.14	.05	-.15
.01	.01	-.06	.11	.20	.00	-.01	.00	-.02	.13	-.08	-.10	.07	-.08
-.08	.28	.13	.20	-.07	.21	.09	.01	-.04	.10	.15	.20	.26	.09
.06	.33	.19	.26	.02	.27	.17	.24	-.04	.16	.34	.32	.22	-.11
.09	.22	.06	.28	.06	.13	.23	.17	-.13	.11	.15	.17	.13	.02
.20	.20	.12	.04	-.05	.25	.05	.06	-.11	.14	.14	.35	.21	-.02
-.02	.20	.22	.08	-.18	.14	.04	.12	-.11	-.03	.08	.24	.17	.03
.06	-.07	-.05	-.09	.19	-.05	.06	-.10	.18	.00	-.11	.03	-.14	-.05
.06	.09	.08	.08	.31	.12	.08	.07	.07	.22	.11	.06	.01	-.15
.17	.38	.27	.13	.04	.36	.12	.13	-.14	.10	.08	.36	.30	-.11
-.07	.11	-.07	.20	-.07	.09	.04	.12	-.05	-.02	.03	.05	.18	.13
.00	.11	.02	.09	.24	.00	.08	.11	.14	.20	.13	.04	.09	-.23
-.02	.14	.08	.15	.02	.22	.20	.12	-.10	.15	.14	.16	.10	-.07
-.01	.32	.12	.03	.12	.26	.15	.26	-.03	.37	.25	.16	.18	-.08
.04	.26	.13	.13	-.06	.14	.14	.11	.01	.01	.07	.15	.11	.06
.11	.09	.15	.11	-.06	.20	-.08	.02	-.09	.09	.22	.13	.16	.00
.17	.33	.20	.23	.03	.26	.20	.24	-.10	.27	.23	.32	.28	-.07

Table 1 (continued)

Scale	Item	25	26	27	28	29	30	31	32	33	34
Liking	1	-.07	.18	-.06	.09	.09	.20	.03	.08	.12	.04
Liking	2	.10	.35	.02	.08	-.02	.23	-.03	.07	.16	.17
Teachers	3	.07	.10	.21	.17	.13	.09	.02	-.03	.15	.19
Social	4	-.03	.14	.06	.11	.12	-.12	-.02	-.02	-.01	.06
Power	5	-.05	.01	.14	.27	.05	-.04	-.03	-.04	-.06	.05
Work	6	.16	-.04	-.05	-.04	.04	-.04	.12	.28	-.14	.03
Liking	7	-.01	.09	.00	.09	.02	-.06	-.09	-.02	.07	.13
Power	8	.04	.17	.03	.14	.04	.08	.06	.13	.01	.09
Power	9	.02	.00	-.03	.03	.11	.02	-.03	-.07	.11	.20
Social	10	.07	.11	-.07	-.03	.10	.13	.16	-.01	-.08	.05
Teachers	11	.03	.03	.09	.05	.03	.00	.10	.06	.09	-.01
	12	.12	.25	.10	.24	.09	.07	.05	.08	.11	.28
Power	13	.09	.22	.06	.20	.11	.11	.12	.06	.19	.17
Social	14	.07	.09	.04	.07	.11	.15	.04	.07	.03	.08
Social	15	.19	.09	-.09	.01	.11	-.08	.04	.08	.01	.06
Teachers	16	.00	.19	.17	.15	-.03	.14	-.03	.02	.17	.23
	17	.06	.18	.02	.16	.07	.17	-.10	.07	.08	.32
Social	18	-.05	.06	.09	.24	.01	.06	-.07	-.17	.19	.10
Power	19	.15	.00	.09	-.07	.05	.14	.27	.15	.08	-.05
Teachers	20	.12	.26	-.07	-.13	-.08	.08	.15	.19	.02	.10
Liking	21	.30	.08	.13	.00	.00	.02	-.12	.04	.00	.05
Teachers	22	-.11	.17	.10	.22	.13	.12	-.01	.02	.18	.25
	23	-.01	.12	.04	.14	-.06	.15	.16	.05	.09	.09
Power	24	.13	-.05	-.13	-.03	-.09	-.09	.02	.25	-.07	-.14
	25		.12	.14	-.10	.10	-.07	.09	.25	-.03	.18
Work	26	-.06		.07	.18	.09	.31	.14	.06	.23	.29
	27	-.32	.09		.14	.15	.06	.13	-.01	.17	.17
	28	.00	.08	-.01		.14	.15	.00	.02	.09	.27
Social	29	-.08	.08	.09	.15		.05	.02	.06	.03	.23
Work	30	-.04	.19	.20	.16	.13		.06	-.07	.42	.29
Power	31	-.05	-.02	-.06	-.02	.09	-.09		.13	.10	.15
Social	32	.25	.03	-.19	-.01	-.03	.04	.00		-.02	.09
Work	33	-.11	.11	.03	.24	.02	.29	-.12	-.02		.19
Work	34	-.07	.21	.16	.31	.17	.36	-.04	.02	.29	
Teachers	35	.08	.14	-.03	.11	-.01	.28	-.16	.19	.12	.28
Teachers	36	-.11	.18	.12	.11	.01	.25	-.06	-.07	.27	.25
Work	37	-.13	.11	.15	.21	.09	.26	-.05	-.07	.29	.28
Teachers	38	-.12	.01	.03	-.04	.07	-.05	.16	.05	-.12	-.14
	39	.11	.20	-.08	.07	.11	.12	-.02	-.08	-.02	.03
	40	-.01	.20	.09	.31	.13	.23	-.06	.05	.24	.41
Power	41	.13	-.05	.04	.09	.12	.15	.07	-.05	-.05	.04
Social	42	.11	.26	-.07	.12	.17	.16	-.01	.12	.03	.02
Work	43	.01	.25	.15	.08	.16	.32	-.10	.03	.20	.38
Liking	44	.03	.41	.02	.13	.04	.27	-.06	.09	.24	.16
	45	-.12	.08	.12	.41	.23	.17	-.09	-.05	.25	.26
	46	.07	-.14	.04	.11	.08	.10	-.03	.03	.09	.29
Work	47	.02	.27	.03	.31	.16	.27	-.03	.09	.24	.43

35	36	37	38	39	40	41	42	43	44	45	46	47
.13	-.03	.16	-.08	.02	.07	.12	.04	.20	.15	-.01	.09	.17
.11	.26	.19	-.01	.22	.13	.20	.09	.07	.23	.06	.26	.36
-.04	.07	.24	-.02	.13	.19	.15	-.07	.23	.01	-.01	.04	.12
.14	-.10	.04	-.01	.09	.11	.09	.08	.20	.13	-.01	.21	.10
-.10	-.11	.07	-.10	.01	.11	-.05	-.02	-.01	-.02	-.04	.01	-.05
.08	-.02	.15	.05	-.03	.06	-.01	.10	.01	.07	-.22	.08	.01
.02	-.01	.02	-.00	-.08	-.02	.12	-.01	.15	.00	-.13	.12	.07
.12	.12	.09	-.07	.18	.25	.20	.11	.11	.17	.03	.22	.14
.16	.02	.19	.05	-.06	.18	.18	.03	.10	-.05	-.03	.20	.11
-.04	.00	-.16	.13	.22	.00	-.04	.11	.00	.08	-.07	-.05	-.05
.12	.13	.15	.10	.10	.11	.10	.19	.09	.03	.09	-.02	-.01
.16	.16	.17	.07	.23	.26	.16	.11	.28	.21	.10	.24	.11
.13	.05	.21	-.12	.25	.27	.32	.02	.09	.09	-.04	.23	.31
.11	.16	.19	-.11	.07	.17	.26	.02	.13	.06	-.14	.14	.22
.15	-.05	.12	-.06	.07	.01	.16	.17	.09	.05	-.06	.14	.07
.04	.29	.13	-.08	.08	.37	.26	-.13	.25	.12	.01	.22	.32
.10	.07	.08	-.05	.15	.21	.18	-.07	.19	.00	.01	.19	.13
.14	-.03	.17	-.15	-.01	.06	.17	-.02	.25	-.06	.05	.19	.09
-.09	-.10	.04	-.03	.23	.05	-.04	.07	-.08	-.01	-.06	.08	-.01
.00	.00	-.01	.08	.17	.24	-.17	.13	-.05	.24	-.06	-.01	.02
-.01	-.01	.11	.03	-.06	.01	.06	-.07	.03	.13	-.18	.24	.11
.02	.06	.08	.09	.19	.22	.14	.00	.25	.10	.08	.08	.03
.03	.05	.18	.07	.11	.07	.02	.17	.21	.16	-.01	.09	.13
-.01	.01	-.06	.05	.14	.14	.02	.12	-.03	.00	-.14	-.09	.14
.00	-.02	.05	.09	.11	.14	.01	.01	-.11	.07	-.10	.10	.19
.11	.15	.08	.03	.23	.24	.01	.17	.10	.36	.06	.21	.25
-.10	.03	.12	-.13	.02	.04	.08	-.22	-.01	.09	.18	.12	.19
.07	.05	.19	-.01	.15	.29	.18	-.03	.23	.11	.10	.29	.04
.07	-.09	.09	.04	.07	.03	.19	.09	.11	-.04	.22	.13	.05
.15	.16	.15	-.14	.15	.10	.08	-.15	.29	.20	.18	.13	.31
-.04	-.02	-.02	.05	.18	-.04	.00	.13	-.09	.11	.05	-.08	.07
.05	.01	.03	.04	.11	.13	-.11	.23	-.09	.14	-.05	.07	.15
.23	.12	.20	-.12	.06	.10	.09	-.07	.27	.04	.17	.10	.35
.05	.14	.26	-.02	.15	.38	.08	-.14	.23	.24	.13	.25	.31
	.08	.20	-.01	.04	.12	.24	.28	.26	.09	.11	.12	.18
.14		.02	-.12	.13	.23	.19	-.18	-.02	.19	.08	.07	.24
.05	.14		.01	-.06	.23	.26	-.02	.17	.08	.00	.29	.23
-.09	-.22	-.02		.06	.00	-.15	.34	-.02	.04	-.02	-.09	-.25
.02	-.03	.05	.04		.25	.11	.30	.09	.18	-.02	.11	.05
.26	.33	.18	-.14	.17		.11	.06	.19	.25	-.06	.33	.17
.18	.05	.11	.06	.03	.07		.02	.23	-.05	.06	.33	.24
-.02	-.10	-.01	.15	.24	.09	.01		.06	.12	-.07	.00	-.10
.14	.15	.26	-.11	.16	.27	-.08	.20		.15	.08	.25	.08
.14	.12	.16	.01	.29	.28	-.12	.14	.30		-.05	.17	.21
.12	.06	.28	.04	-.04	.24	.02	.14	.07	.23		-.07	.08
.10	.32	.09	-.11	.01	.12	.23	-.04	.13	-.02	.01		.26
.21	.30	.19	-.16	.11	.40	.13	.12	.31	.33	.21	.23	

TABLE 2

Correlations Between Items Paired for Similarity of Meaning

Pairs of Items		Oct. r	Feb. r
2.	I look forward to going to school.		
44.	On lots of school days I would rather stay home.	.25	.35
10.	Sometimes I feel no one at my school likes me.		
29.	I have many friends at school.	.10	.29
16.	Teachers make work more fun.		
26.	School work is boring.	.19	.22
26.	School work is boring.		
34.	Most of what we learn is interesting.	.29	.17
26.	School work is boring.		
30.	I am learning a lot in school this year.	.31	.19
30.	I am learning a lot in school this year.		
34.	Most of what we learn is intersting.	.29	.36
7.	Kids are proud to say they go to this school.		
21.	I would rather go to this school than most others.	.24	.47
13.	Hard work pays off at school.		
19.	There is no use in trying to do better schoolwork.	.00	-.01
22.	Teachers like to teach and to help kids.		
38.	Teachers would rather do some other kind of work.	.09	.03
16.	Teachers make work more fun.		
34.	Most of what we learn is interesting.	.23	.27
15.	There is too much fighting at school.		
42.	Kids are mean to each other.	.17	.24
32.	A lot of kids at this school take things that don't belong to them.		
42.	Kids are mean to each other.	.23	.12
37.	I feel good because I do my best work.		
47.	I feel good when I am working in my classroom.	.23	.19

Note: Correlations were computed after scores were adjusted to reverse negative statements.

statements (e.g., pairs 6 and 7). The lowest correlations occurred where one item was negative and one was positive (e.g., pairs 8 and 9). The possibility of response error related to negative statements will be discussed more when it is suggested again by some results of factor analysis. Nevertheless, since both items in a pair were intended to ask the same question, most of the correlations are unacceptably low.

Item-to-scale correlations. Tables 3A-3C report the correlation of each TAMS item to the hypothesized scales. The scale to which each item was assigned is indicated in the column beside the item number. The r's obtained in spring 1971 are substantially higher than those for fall and winter 1971-72. Possible reasons for this difference will be considered. On all three sets of data each item was correlated most highly with its assigned scale. But the significance of the correlation with the predicted scale is modified by error. These correlations are spuriously high owing to the inclusion of the item in the scale score to which the item is being correlated. If the figures were adjusted for that error, correlations for many items would be relatively equal across scales.

Reliability of subscales. Tables 4A-4E report inter-item correlations within the hypothesized scales, the Cronbach alpha coefficient of internal consistency, item means and standard deviations. Values were derived from the inventories completed October 1971 and February 1972. The fall sample size was 215, compared to 197 in winter. The items are listed on each table to assist the reader in evaluating the results.

The matrices in Table 4 raise doubts about the reliability and validity of the TAMS subscales. Comparison of the alpha coefficients for scales suggest Power to be the least reliable, although inter-item correlations on the Social scale are even lower. The most reliable scale seems to be Work. The alphas fall and winter for four of the five scales suggest that responses on the winter measure were more internally consistent. Furthermore, the discrepancy between inter-item correlations fall and winter is frequently large. The means and standard deviations appear normal. In summary, the evidence in support of scale validities is weak, and correlational results suggest low reliability and high response error (e.g., the correlations between items 2 and 21 in Table 4E).

TABLE 3

Item-to-Scale Correlations

A. Spring 1971 TAMS Scores (N = 251)

Item	Assigned scale	Power	Social	Work	Teachers	Liking for school	Total
		1	2	3	4	5	6
1	L	.374	.401	.366	.384	.574†	.473
2	L	.442	.353	.438	.439	.661†	.540
3	T	.415	.340	.378	.585†	.392	.502
4	S	.357	.535†	.374	.447	.467	.511
5	P	.512†	.358	.313	.388	.293	.459
6	W	.267	.284	.300†	.218	.192	.282
7	L	.280	.328	.287	.382	.633†	.425
8	P	.621†	.396	.360	.453	.398	.533
9	P	.448†	.312	.365	.357	.250	.418
10	S	.299	.534†	.374	.318	.161	.383
11	T	.451	.396	.379	.634†	.349	.529†
12	-	.392	.391	.380	.484	.426	.540†
13	P	.625†	.406	.378	.381	.339	.514
14	S	.404	.574†	.405	.369	.362	.495
15	S	.294	.491†	.249	.166	.207	.334
16	T	.367	.268	.373	.568†	.422	.474†
17	-	.373	.391	.349	.413	.418	.491†
18	S	.309	.444†	.303	.339	.339	.410
19	P	.506†	.269	.229	.174	.167	.315
20	T	.238	.279	.244	.438†	.291	.348
21	L	.153	.267	.259	.266	.620†	.353
22	T	.419	.463	.463	.634†	.374	.582†
23	-	.358	.381	.391	.397	.335	.485†
24	P	.416†	.208	.160	.220	.158	.280†
25	-	.240	.307	.228	.242	.289	.336†
26	W	.369	.431	.563†	.441	.477	.559†
27	-	.368	.309	.388	.361	.286	.465†
28	-	.417	.394	.517	.418	.316	.560†
29	S	.415	.627†	.461	.373	.255	.521
30	W	.371	.369	.716†	.459	.314	.552
31	P	.476†	.340	.363	.222	.152	.371
32	S	.285	.492†	.303	.308	.272	.398
33	W	.444	.390	.685†	.467	.307	.569
34	W	.379	.408	.663†	.454	.338	.575
35	T	.334	.445	.497	.530†	.277	.506
36	T	.169	.165	.331	.544†	.285	.377
37	W	.419	.376	.668†	.440	.363	.564
38	T	.296	.336	.339	.479†	.235	.417†
39	-	.386	.406	.385	.392	.211	.487†
40	-	.460	.371	.535	.508	.297	.587†
41	P	.576†	.395	.431	.369	.335	.522
42	S	.364	.557†	.286	.298	.309	.421
43	W	.386	.434	.672†	.471	.376	.588
44	L	.322	.362	.432	.390	.616†	.499†
45	-	.356	.333	.457	.409	.273	.497†
46	-	.410	.419	.447	.329	.418	.531†
47	W	.416	.380	.631†	.388	.447	.553

†Indicates match of item with hypothesized scale.

TABLE 3 (Continued)

B. October 1971 TAMS Scores (N = 215)

Item	Assigned scale	Power	Social	Work	Teachers	Liking for school	Total
		1	2	3	4	5	6
1	L	.184	.227	.273	.181	.443†	.357
2	L	.202	.112	.327	.286†	.552†	.430
3	T	.217	.102†	.312	.537†	.158	.422
4	S	.103†	.412†	.170	.181	.312	.328
5	P	.321†	.134	.052†	.129	.122	.256
6	W	.154	.210	.261†	.082	.078†	.178
7	L	.056†	.196	.166	.226	.615†	.333
8	P	.527†	.241	.182	.269	.246	.428
9	P	.307†	.133†	.246	.170	.075	.250
10	S	.114	.333†	.003	-.002†	-.102	.091
11	T	.254	.198	.155	.575†	.158	.401†
12	-	.251†	.267	.315	.433	.347	.567†
13	P	.532†	.151†	.252	.173	.157	.388
14	S	.274	.449†	.281	.220	.251	.386
15	S	.106	.522†	.142	.035†	.072	.242
16	T	.266	.099	.324	.534†	.294	.443†
17	-	.192	.178†	.248	.251	.252	.407†
18	S	.076†	.275†	.158	.142	.204	.270
19	P	.376†	.042	-.029	-.127†	-.071	.036
20	T	.069	.104	.128	.382†	.151†	.225
21	L	-.056	.076	.111	.009†	.575†	.187
22	T	.104	.184	.278	.487†	.133	.382†
23	-	.199†	.180	.233	.267	.198	.390†
24	P	.293†	.004	-.054	.040	-.079	.066†
25	-	.107	.182	.130†	.102	.160	.258†
26	W	.156	.294	.546†	.364	.394	.523†
27	-	.037	-.083	.142	.057	.100	.173†
28	-	.187	.151†	.253	.185	.125	.384†
29	S	.133	.484†	.165†	.055	.014	.227
30	W	.128†	.022	.603†	.229	.146	.342
31	P	.431†	.124†	.121	.003	-.024	.158
32	S	.144	.406†	.133†	.119	.129	.263
33	W	.136	.010	.504†	.187	.067	.285
34	W	.164	.171	.591†	.262†	.218	.484
35	T	.070	.259	.299	.377†	.119	.313
36	T	.013	-.042	.199†	.475†	.153	.268
37	W	.170	.087	.481†	.201†	.195	.357
38	T	-.051	.071	-.047	.260†	.029	.079†
39	-	.255	.251	.124	.225	.036	.359†
40	-	.316†	.137	.320	.372	.124	.485†
41	P	.507†	.264†	.249	.245	.154	.433
42	S	.160	.537†	.024†	.176	.137	.247
43	W	.106	.258	.550†	.336	.224†	.452
44	L	.117	.199	.313	.267	.621†	.414†
45	-	.020	.021	.119	.161	-.011	.185†
46	-	.232	.249	.350†	.167	.308	.472†
47	W	.237	.181	.625†	.209	.346	.462

†Indicates match of item with hypothesized scale.

TABLE 3 (Continued)

C. February 1972 TAMS Scores (N = 197)

Item	Assigned scale	Power	Social	Work	Teachers	Liking for school	Total
		1	2	3	4	5	6
1	L	.142	.129	.336	.235	.529†	.414
2	L	.129	.174	.318	.340†	.603†	.470
3	T	.220	.201	.408	.589†	.321	.528
4	S	.041	.346†	.144	.166	.217	.235
5	P	.475†	.051	.167	.255	.209	.381
6	W	.109	.216	.297†	.153	.172	.280
7	L	.099	.217	.268	.243	.681†	.442
8	P	.344†	.266	.237	.363	.263	.439
9	P	.517†	.095	.283	.179	.140	.383
10	S	-.058	.398†	.070	.023	-.080	.094
11	T	.091	.098	.075	.461†	.119	.250
12	-	.262	.148	.399	.389	.374	.557†
13	P	.479†	.012	.190	.223	.109	.309
14	S	.057	.389†	.216	.167	.214	.293
15	S	.015	.520†	.063	.138	.138	.206
16	T	.279	.141	.373	.555†	.365	.528
17	-	.048	.216	.285	.253	.309	.396†
18	S	.061	.406†	.297	.164	.262	.351
19	P	.185†	.029	-.107	-.095	-.065	-.017
20	T	.064	.248	.314	.506†	.218	.381
21	L	.126	.151	.327	.227	.722†	.440
22	T	.146	.092	.333	.631†	.193	.440
23	-	.246	.118	.314	.306	.158	.423†
24	P	.334†	-.132	-.074	-.087	-.044	-.026
25	-	-.045	.139	-.085	-.135	.004	.006†
26	W	-.028	.229	.500†	.288	.309	.368
27	-	.194	-.026	.175	.169	.135	.234†
28	-	.228	.085	.282	.222	.222	.391†
29	S	.106	.440†	.230	.131	.137	.314
30	W	.066	.272	.590†	.373	.312	.481
31	P	.407†	-.072	-.104	-.013	-.128	-.027
32	S	-.023	.451†	.075	.076	.036	.144
33	W	.099	.068	.543†	.207	.226	.365
34	W	.202	.189	.634†	.370	.369	.562
35	T	.039	.151	.270	.398†	.212	.335
36	T	.113	-.034	.285	.481†	.174	.339
37	W	.180	.004	.510†	.166	.217	.345
38	T	.056	.081	-.154	.212†	-.007	.005
39	-	.113	.298	.168	.158	.176	.295†
40	-	.154	.131	.401	.373	.259	.505†
41	P	.461†	-.037	.064	.096	.043	.210
42	S	-.015	.543†	.184	.060	.144	.229
43	W	-.035	.292	.612†	.177	.285	.417
44	L	-.023	.252	.440	.288	.633†	.455
45	-	.199	.094	.260	.176	.270	.391†
46	-	.283	.014	.186	.226	.189	.324†
47	W	.181	.264	.631†	.399	.384	.579

†Indicates match of item with hypothesized scale.

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TABLE 4

Inter-Item Correlations, Alpha Coefficients, Means, and Standard Deviations for October and February 1971-72, by Scale

A. Power

	5	8	9	13	19	24	31	41
5		.17 .28	.02 .19	.15 .20	-.01 -.16	-.05 -.07	-.03 .08	-.05 .22
8			.13 .08	.23 .25	.02 -.28	.12 -.13	.06 .06	.20 .06
9				.06 .29	.02 -.07	-.24 .03	-.03 .05	.18 .12
13					.00 -.01	.06 .02	.12 .04	.32 -.07
19						.02 -.01	.27 .05	-.04 -.05
24							.02 -.15	.02 .13
31								.00 .07
41								

Cronbach alpha: fall .29; winter .23.

Key:
5. Grown-ups at school listen to the ideas of kids.
8. Kids think most of the grown-ups at school ar their good friends.
9. The kids help decide what should be done in the school.
13. Hard work pays off at school.
19. There is no use in trying to do better schoolwork.
24. Students should help run the school.
31. Grown-ups have all the power in the school.
41. Kids have the right amount of power at our school.

		5	8	9	13	19	24	31	41
Fall	$\bar{X}$	2.56	2.55	2.43	2.85	2.45	2.04	2.27	2.51
	SD	.94	.94	1.00	1.07	1.11	1.14	1.19	1.12
Winter	$\bar{X}$	2.19	2.26	2.54	2.62	2.32	3.14	2.32	2.27
	SD	.99	.95	.99	1.06	1.13	1.12	1.22	1.12

TABLE 4 (Continued)

B. Social

	4		10		14		15		18		29		32		42	
4		.00	.14	.03	.21	.09	.12	.16	.06	.12	.05	-.02	.09	.08	.04
10				-.04	-.14	-.02	.16	-.11	-.03	.10	.29	-.01	.07	.11	.14
14						.17	.10	.11	.17	.11	.05	.07	.11	.02	.09
15								.03	.09	.11	-.05	.08	.20	.17	.24
18										.01	.10	-.17	.00	-.02	.11
29												.06	-.03	.09	.17
32														.23	.12
42															

Cronbach alpha: fall .36; winter .40.

Key:
4. Kids are happy most of the time at our school.
10. Sometimes I feel no one at my school likes me.
14. Everyone works together.
15. There is too much fighting at school.
18. Kids listen if you say what you think.
29. I have many friends at school.
32. A lot of kids at my school take things that don't belong to them.
42. Kids are mean to each other.

		4	10	14	15	18	29	32	42
Fall	$\bar{X}$	2.27	2.69	2.46	1.85	2.37	3.12	1.68	2.32
	SD	.72	.99	.95	.99	.90	.97	.92	.96
Winter	$\bar{X}$	2.37	2.80	2.36	1.82	2.22	3.31	1.52	2.23
	SD	.76	1.01	.88	1.01	.88	.95	.88	.97

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TABLE 4 (Continued)

C. Work

	6		26		30		33		34		37		43		47	
6			-.04	-.01	-.04	-.04	-.14	.17	.03	.05	.15	-.06	.01	.10	.01	.14
26					.31	.19	.23	.11	.29	.21	.08	.11	.10	.25	.25	.27
30							.42	.29	.29	.36	.15	.26	.29	.32	.31	.27
33									.19	.29	.20	.29	.27	.20	.35	.24
34											.26	.28	.23	.38	.31	.43
37													.17	.26	.23	.19
43															.08	.31
47																

Cronbach alpha: fall .61; winter .65.

Key:
6. Some days there is so much noise I can't work in class.
26. School work is boring.
30. I am learning a lot in school this year.
33. It is usually clear to me what I am supposed to do in class.
34. Most of what we learn is interesting.
37. I feel good because I do my best work.
43. I get all the help I need with my work.
47. I feel good when I am working in my classroom.

		6	26	30	33	34	37	43	47
Fall	$\bar{X}$	2.17	2.53	3.22	2.95	2.84	3.07	2.62	2.73
	SD	1.08	1.05	.89	.93	.91	.94	1.03	1.10
Winter	$\bar{X}$	2.00	2.75	3.18	3.03	2.79	3.03	2.48	2.61
	SD	1.03	1.12	.96	.94	.97	1.02	.96	1.11

TABLE 4 (Continued)

D. Teachers

	3	11	16	20	22	35	36	38
3	.27 .16	.23 .34	.03 .25	.27 .31	-.04 .26	.07 .16	-.02 .02	
11		.12 .07	-.07 .16	.16 .19	.12 .09	.13 .20	.10 .06	
16			.16 .15	.08 .31	.04 .13	.29 .25	-.08 -.05	
20				.07 .16	.00 .11	.00 .14	.08 .00	
22					.02 .17	.06 .35	.09 .03	
35						.08 .14	-.01 -.09	
36							-.12 -.22	
38								

Cronbach alpha: fall .46; winter .63.

Key:
3. Teachers at my school like kids.
11. Teachers are happy at school.
16. Teachers make work more fun.
20. Teachers ask kids to do too much school work.
22. Teachers like to teach and to help kids.
35. Kids listen to their teacher carefully.
36. My teacher is sad if I am not at school.
38. Teachers would rather do some other kind of work.

		3	11	16	20	22	35	36	38
Fall	$\bar{X}$	2.72	2.73	2.34	2.33	3.23	2.55	1.98	2.63
	SD	.96	1.01	1.06	1.13	.95	.93	1.07	.96
Winter	$\bar{X}$	2.55	2.67	2.10	2.49	3.10	2.35	1.86	2.68
	SD	.97	.98	1.04	1.18	.98	.91	1.06	1.03

TABLE 4 (Continued)

E. Liking for School

	1	2	7	21	44
1		.48 .22	.14 .36	.08 .28	.15 .22
2			.16 .20	.00 .23	.25 .35
7				.24 .47	.00 .20
21					.21 .25
44					

Cronbach alpha: fall .46; winter .63.

Key:
1. My school is a friendly place.
2. I look forward to going to school.
7. Kids are proud to say they go to my school.
21. I would rather go to my school than most other schools.
44. On lots of school days I would rather stay home.

		1	2	7	21	44
Fall	$\bar{X}$	2.12	3.12	2.28	2.52	2.45
	SD	.82	1.04	1.08	1.23	1.16
Winter	$\bar{X}$	1.98	3.02	2.11	2.10	2.56
	SD	.75	1.01	1.00	1.22	1.14

Inter-scale correlations. Table 5 presents correlations between the five hypothesized subscales plus the total score included as a sixth scale. Scale means and standard deviations are given also for 1971-72 fall and winter data. (The reader is reminded that correlations with the total score are spuriously high due to inclusion of the scale in the total with which it is correlated.) The results show scales 3, 4, and 5 to be most highly intercorrelated.

TABLE 5

Inter-Scale Correlations, Scale Means, and Standard Deviations for October and February 1971-72

	$\bar{X}$	S.D.	1	2	3	4	5	6
1	19.67	3.50		.33	.30	.26	.16	.60
2	18.77	3.18			.31	.26	.28	.59
3	22.14	4.11				.45	.41	.75
4	20.51	3.66					.33	.70
5	12.48	3.03						.60
6	119.40	15.28						-

October (N = 215)

	$\bar{X}$	S.D.	1	2	3	4	5	6
1	19.69	3.42		.05	.18	.26	.14	.48
2	18.64	3.23			.36	.26	.29	.52
3	21.86	4.37				.50	.53	.79
4	19.80	3.91					.42	.73
5	11.77	3.29						.69
6	116.74	15.69						-

February (N = 197)

Scales: 1 = Power, 2 = Social, 3 = Work, 4 = Teachers, 5 = Liking for School, 6 = Total

Internal consistency. The alpha coefficients for internal consistency have been reported on previous tables of inter-item correlations within the hypothesized scales. The values reported were based on the administrations in the fall and winter of 1971-72. It is important to report also that the same analysis completed with data collected from the first administration of TAMS (spring 1971) to the sample resulted

in much higher alpha coefficients. Those values are given in Table 6. From comparison of the alphas for data obtained from the first, second, and third administrations of the instrument to samples of basically the same population, one might speculate that accuracy of self-report may be highest on initial testing experiences and that random error or carelessness probably increases on subsequent assessments. Until TAMS is administered in similar time sequences again, such speculation remains very tenuous.

TABLE 6

Alpha Coefficients of Internal Consistency for Spring 1971

Scale	1	2	3	4	5	6 (Total)
α	.62	.64	.76	.67	.60	.92

Fall-winter correlations. With the self-reports of 163 of the subjects who completed the inventory in both October and February of 1971-72, fall-winter correlations for scale scores were computed (see Table 7). Of course these coefficients are inadequate estimates of reliability for two reasons. First, during the 1971-72 school year, intervention programs involving teachers and students in changing the attitudes and behavior of many individuals and the group as a whole were conducted. This fact seriously limits the use of these data in determining the reliability or stability of responses over time. Second, the period of five school months intervening between administrations is too long for adequate testing of reliability. A shorter period, of about two months or less, would be more informative.

It is interesting to note that generally the most consistent responses were giver by fifth graders of both sexes and by girls in all grades. The least variation between groups was on coefficients for the Work scale. Comparison of the coefficients for leaders with those of other groups is indicative of some degree of validity in the scales. Leaders were highest in fall to winter similarity of responses for items on the

TABLE 7

October-February Inter-Scale Correlations for Groups of Subjects

Scale	All Ss	Leaders	Males	Females	Grade 4	Grade 5	Grade 6
Power	.14	-.02	.07	.18	.008	.21	.23
Social	.29	.44	.17	.43	.35	.32	.22
Work	.51	.53	.49	.51	.46	.55	.53
Teachers	.44	.29	.37	.49	.17	.60	.51
Liking School	.30	.54	.24	.37	.24	.37	.27
Total	.51	.45	.40	.61	.49	.54	.52
N	163	64	94	69	51	49	63

scales pertaining to social (peer) relations and liking for school. They were lowest, along with fourth graders, on fall to winter r's for scales assessing sense of power or efficacy in the school environment and sense of rapport and liking for teachers. Both of these results are reasonable outcomes for students who had been chosen and had acted as leaders.

Summary of tests of reliability. The results of tests of reliability were most encouraging for the first set of data obtained (spring 1971). The results of the second and third administration of TAMS were less promising. Examination of the matrices and of the means and standard deviations for items and scales does indicate either that there is no evidence that the distribution of scores is not normal or that there are serious deficiencies in the instrument. Consequently, the following measures are recommended: (a) items 19, 24, and 38 probably should be dropped due to ambiguity or failure to have the intended meaning for children; (b) all of the items involving the word "power" should be evaluated for use with other student groups, and perhaps these items would be more reliable and valid if reworded (variance among subjects' responses may result from differences in meaning or affective connotations

attributed to the word "power"); (c) the accuracy of responses to negative items should be evaluated further. Generally, there is preliminary evidence that the scores on TAMS scales may be as reliable as those obtained on most measures of attitude (Scott, 1968); however, much more extensive data collection and analyses must be completed before conclusions can be made with confidence.

Validity Data

Factor analyses. A factor analysis of the fall 1971 data on 215 subjects was completed to test the validity of the hypothesized subscales. The inter-item correlation matrix was factor analyzed by BMD-X72 (Dixon, 1970), using squared multiple correlations as commonality estimates. Two varimax rotations were performed, one rotating five factors and then one rotating two factors. The results are presented in Tables 8 and 9. Following each table are lists of the items loading highest on each factor. Some suggestions regarding the possible unifying elements in each factor are offered. The purpose of such detailed reporting of the results is to assist researchers interested in performing similar analyses with new data.

TABLE 8

Results of Orthogonal Rotation of Five Factors

Item and Scale	Factors				
	1	2	3	4	5
1 (L)	.16	.01	.15	.10	-.28
2 (L)	.24	.09	.31	.24	-.16
3 (T)	.50	.00	.13	-.04	-.06
4 (S)	.20	.11	-.03	.18	-.34
5 (P)	.43	.15	-.07	.04	.08
6 (W)	-.02	-.07	-.09	.43	.02
7 (L)	.25	.29	-.03	.19	-.27
8 (P)	.35	.02	.13	.25	-.10
9 (P)	.04	.07	.10	-.05	-.39
10 (S)	.03	-.40	-.08	.00	.04
11 (T)	.46	.03	-.03	.02	-.16
12 ---	.56	-.03	.07	.13	-.21
13 (P)	.27	-.06	.25	.11	-.06
14 (S)	.21	.16	.17	.29	-.18
15 (S)	.01	-.08	-.06	.27	-.23
16 (T)	.31	.13	.38	.22	-.06
17 ---	.38	.11	.13	.11	-.14
18 (S)	.29	.25	.01	-.19	-.34
19 (P)	-.12	-.30	-.02	-.08	.06
20 (T)	.05	-.32	.00	.35	.05
21 (L)	-.00	.29	.02	.35	-.07
22 (T)	.40	-.09	.12	-.12	-.19
23 ---	.36	-.08	.05	.10	-.11
24 (P)	.16	-.19	-.02	.19	.34
25 ---	.03	-.10	.08	.40	.04
26 ---	.21	-.25	.28	.29	-.28
27 ---	.13	.09	.22	-.09	.03
28 ---	.50	.01	.13	-.12	-.07
29 (S)	.08	-.10	-.03	.01	-.25
30 (W)	.06	-.22	.53	-.09	-.20
31 (P)	-.04	-.34	.02	.08	-.06
32 (S)	.09	-.15	-.01	.46	.05
33 (W)	.05	-.14	.41	-.19	-.23
34 (W)	.31	-.14	.38	.01	-.21
35 (T)	.06	-.04	.08	.01	-.48
36 (T)	.18	.07	.40	.04	.01
37 (W)	.19	.11	.17	-.02	-.33
38 (T)	.09	-.22	-.33	.06	-.07
39 ---	.31	-.38	.05	.17	.04
40 ---	.45	-.20	.27	.07	-.03
41 (P)	.27	.13	.20	.08	-.29
42 (S)	.08	-.33	-.40	.28	-.36
43 (W)	.31	-.01	.16	-.03	-.42
44 (L)	.14	-.14	.17	.34	-.22
45 ---	.18	-.08	.12	-.29	-.18
46 ---	.26	.08	.25	.20	-.27
47 (W)	.04	.05	.54	.23	-.27
% of Total Variance	11%	+4%	+3%	+3%	+2%

Cumulative Proportion of Total Variance = 23%

Items loading highest on factor one:

3. Teachers at my school like kids.
5. Grown-ups at school listen to the ideas of kids.
8. Kids think most of the grown-ups at school are their good friends.
11. Teachers are happy at school.
12. Our school rules are fair and make sense.
13. Hard work pays off at school.
17. My parents think this school is a good school.
22. Teachers like to teach and to help kids.
23. Punishment is usually fair.
28. The feelings and ideas of kids are important at our school.
40. At our school the grown-ups do what is best for the kids.

Other items with high loadings on this and other factors:

7. Kids are proud to say they go to my school.
16. Teachers make work more fun.
20. Schoolwork is boring.
34. Most of what we learn is interesting.
39. At school I get blamed for things I didn't do.
41. Kids have the right amount of power at our school.
46. Kids feel important at our school.

This first factor, which accounts for 11 percent of the total variance, seems to contain items related to Adults in the school. All but two of the items are positive statements which directly or indirectly communicate that grown-ups in the school are friends to the children, help them enjoy school, and are fair and responsive.

Items loading highest on factor two:

10. Sometimes I feel no one at my school likes me.
19. There is no use in trying to do better schoolwork.
31. Grown-ups have all the power in the school.

Other items with high loadings on this and other factors:

7. Kids are proud to say they go to my school.
20. Teachers ask kids to do too much schoolwork.
26. Schoolwork is boring.
39. At school I get blamed for things I didn't do.
42. Kids are mean to each other.

Only three items loaded highest on this factor alone, and all three are rather strong negative statements with reference to the self-concept of a child. Of eight items potentially included in Factor Two, only one was a positive statement. This predominance of negative items loading on a factor repeats itself with Factor Four, and again with the two factor rotation reported in Table 9. This circumstance raises the

question whether there was a response set regarding negative statements, especially those pertaining directly to self-worth. This factor might be tentatively labeled "Frustration and Alienation." It contributes only an additional 4 percent to the total variance.

Items loading highest on factor three:

2. I look forward to going to school.
27. I like to think of new ideas, ways to do things.
30. I am learning a lot in school this year.
33. It is usually clear to me what I am supposed to do in class.
36. My teacher is sad if I am not at school.
38. Teachers would rather do some other kind of work.
47. I feel good when I am working in my classroom.

Other items with high loadings on this factor and others:

16. Teachers make work more fun.
26. Schoolwork is boring.
34. Most of what we learn is interesting.
42. Kids are mean to each other.
46. Kids feel important at our school.

The items loading on Factor Three seem to have in common the emotional response, "I enjoy what we do in class." This Enjoyment factor appears to represent the extent to which the child, and the teacher, find the child's presence in the classroom stimulating and rewarding. It adds 3 percent to the total variance.

Items loading highest on factor four:

6. Some days there is so much noise I can't work in class.
14. Everyone works together.
21. I would rather go to my school than most other schools.
25. I would like to see many things change in my school.
32. A lot of kids at my school take things that don't belong to them.
45. If I have an idea for the answer to my teacher's question, I tell the teacher.

Other items with high loadings on this factor and others:

15. There is too much fighting at school.
20. Teachers ask kids to do too much schoolwork.
26. Schoolwork is boring.
42. Kids are mean to each other.
44. On lots of school days I would rather stay home.

Factor Four seems to contain items related to Tensions experienced by the child in the classroom. These tensions include inner (boredom, inability to concentrate, fearing peer hostilities) and outer (too much noise, too much work to complete, peer interactions) manifestations.

Of 11 potential items on this factor, 8 are negative statements. These items clustered together add 3 percent to the total variance accounted for.

Items loading higher on factor five:

1. My school is a friendly place.
4. Kids are happy most of the time at our school.
9. The kids help decide what should be done in the school.
24. Students should help run the school.
29. I have many friends at school.
35. Kids listen to their teacher carefully.
37. I feel good because I do my best work.

Other items with high loadings on this factor and others:

7. Kids are proud to say they go to my school.
15. There is too much fighting at school.
26. Schoolwork is boring.
41. Kids have the right amount of power at this school.
42. Kids are mean to each other.
43. I get all the help I need with my work.
44. On lots of school days I would rather stay home.
46. Kids feel important at our school.
47. I feel good when I am working in my classroom.

Factor Five seems similar to Factor Three in content. The unifying element appears to be related to the idea that Students are friendly, happy, and responsible in school. This factor only accounts for an additional 2 percent of the total variance.

Together the five factors rotated explain only 23 percent of the total variance in subject responses. Less than a quarter of the variance is not very much, and it calls into serious question the validity of the factors hypothesized and the value of the factors obtained empirically.

Because examination of the correlation matrices led the investigator to hypothesize that there might be two factors existing, a second factor analysis was performed--this time with two rotations. It was hypothesized that items pertaining to teachers, work, and learning conditions might comprise one factor, and items relating to social relations and emotional climate might constitute the second factor. The results are in Table 9.

TABLE 9

Results of Orthogonal Rotation of Two Factors

Item and Scale	Factors 1	2	Item and Scale	Factors 1	2
1(L)	.34	.03	26	.46	.30
2(L)	.45	.08	27	.17	-.16
3(T)	.43	-.03	28	.42	-.09
4(S)	.33	.08	29(S)	.16	.06
5(P)	.23	.00	30(W)	.38	-.09
6(W)	.00	.40	31(P)	.01	.24
7(L)	.33	-.01	32(S)	.10	.46
8(P)	.40	.17	33(W)	.31	-.19
9(P)	.27	-.13	34(W)	.50	.00
10(S)	-.06	.25	35(T)	.32	-.02
11(T)	.38	.03	36(T)	.32	-.09
12	.54	.13	37(W)	.39	-.13
13(P)	.35	.08	38(T)	-.06	.25
14(S)	.37	.10	39	.22	.36
15(S)	.14	.25	40	.45	.14
16(T)	.48	.03	41(P)	.45	-.06
17	.42	.02	42(S)	.07	.47
18(S)	.36	-.29	43(W)	.50	-.06
19(P)	-.13	.23	44(L)	.34	.29
20(T)	.05	.47	45	.22	-.21
21(L)	.11	.10	46	.48	.05
22(T)	.41	-.06	47(W)	.47	.01
23	.34	.13			
24(P)	-.05	.30	% Total		
25	.10	.35	Variance	11% + 4%	

Note: Items 12, 17, 23, 25, 26, 27, 28, 39, 40, 45, and 46 were not assigned to hypothesized scales.

Items loading on factor one:

1. My school is a friendly place.
2. I look forward to going to school.
3. Teachers at my school like kids.
4. Kids are happy most of the time at our school.
5. Grown-ups at school listen to the ideas of kids.
7. Kids are proud to say they go to our school.
8. Kids think most of the grown-ups at school are their good friends.
9. The kids help decide what should be done in the school.
11. Teachers are happy at school.
12. Our school rules are fair and make sense.
13. Hard work pays off at school.
14. Everyone works together.
16. Teachers make work more fun.
17. My parents think this school is a good school.
18. Kids listen if you say what you think.
22. Teachers like to teach and to help kids.
23. Punishment is usually fair.
26. Schoolwork is boring.
28. The feeling and ideas of kids are important at our school.
29. I have many friends at school.
30. I am learning a lot in school this year.
33. It is usually clear to me what I am supposed to do in class.
34. Most of what we learn is interesting.
35. Kids listen to their teacher carefully.
36. My teacher is sad if I am not in school.
37. I feel good because I do my best work.
40. At this school the grown-ups do what is best for the kids.
41. Kids have the right amount of power at our school.
43. I get all the help I need with my work.
44. On lots of school days I would rather stay home.
45. If I have an idea for the answer to my teacher's question, I tell the teacher.
46. Kids feel important at our school.
47. I feel good when I am working in my classroom.

Items loading on factor two:

6. Some days there is so much noise I can't work in class.
10. Sometimes I feel no one at this school likes me.
15. There is too much fighting at school.
19. There is no use in trying to do better schoolwork.
20. Teachers ask kids to do too much schoolwork.
24. Students should help run the school.
25. I would like to see many things change in my school.
31. Grown-ups have all the power in the school.
32. A lot of kids at this school take things that don't belong to them.
38. Teachers would rather do some other kind of work.
39. At school I get blamed for things I didn't do.
42. Kids are mean to each other.

It was not immediately possible to distinguish between the sets of items comprising each of the two factors. It soon became apparent, however, that 11 of the 12 items loading on Factor Two were negative statements, and that Factor One included only two negative statements. It may be that a response set exists regarding negative items on self-report measures. Further testing of this possibility is needed. If similar results are obtained again, the next questions must ask if this bias is characteristic of all groups of people, of children in this age range, of persons of low socioeconomic status, of low achievers in school, and so forth. It is also important to ask to what extent such a response set might occur because of emotional reaction to negative statements and because of a cognitive problem in responding accurately. Of course, since negative statements are reverse-scored this finding could be the result of a careless response set (e.g., all responses in column 3).

Criterion validity. What will TAMS scale scores and total scores predict in terms of concurrent or future pupil attitudes and behavior? Two sets of analyses were completed to answer this question. The first set was applied to the fall 1971 data on 94 random subjects in the population for whom all external measures were available. The second set used additional data gathered only on the 64 student leaders. The external variables used for the validation of TAMS are briefly described below.

I. Self-Concept Measures (October, February)

A. Sears Self-Concept Inventory. (See Appendix B.) This 48-item questionnaire asks the child to compare himself with other children his age on nine scales.

1. Physical Ability: size, build, sports
2. Attractive Appearance: general looks
3. Convergent Mental: ability to learn, achieve
4. Social Relations: ability to get along well with peers of the same sex
5. Social Virtues: being sensitive to others
6. Divergent Mental: ability to think creatively, to generate new and different ideas

7. Work Habits: ability to concentrate and organize materials to complete work well

8. Happy Qualities: generally feeling happy, being comfortable and enjoying life

9. School Subjects: doing well academically

B. Gordon Self-Concept Measure. (See Appendix C.) On this questionnaire the child is asked to report how he feels about himself, without reference to or comparison with others. The factor analyses completed by Gordon yielded five factors: Teacher-School, Physical Appearance, Interpersonal Adequacy, Autonomy, and Academic Adequacy (see Gordon, 1968). This instrument was administered only to the student leaders. Only total scores and 17 items predicted to be especially meaningful to participating leaders were used. The cluster of 17 items was labeled "Special Focus" (Sp. F.).

II. Measures of Power (October, February)

A. Hess-Shipman Locus-of-Control Measure. (See Appendix D.) This instrument asks the child to choose from two possible answers the one which best describes his feelings. The statements relate experiences of success or failure in school life. One possible response suggests that the child attributes success or failure to external causes (other people or circumstances); the other indicates that the child assumes personal responsibility (internal control) for the consequences of his behavior. The scores used are described as separate variables below:

I+: the number of responses in which the S assumed internal control for positive success outcomes

I-: the number of responses in which the S assumed internal control for negative failure outcomes

I-total: the total number of Internal responses

B. TAP. (See Appendix E.) This simple questionnaire that asks the child to report the relative frequency with which specific people in his life respond to his efforts to be listened to and to gain help. Only three of the scores are discussed in this report:

Kids Listen (How often do most kids listen to you?)

Teacher Helps (How often will your teacher help you solve a problem, plan what to do, ...?)

Principal Helps (How often will your principal help you?)

C. Peer Nominations. In the fall and winter, all students in the intermediate grades were asked to list the names of four classmates who could get them to do the most. The number of nominations were tallied for each student in the class. (See Whitmore, 1973.)

III. Teacher Ratings of Pupil Behavior

A. Teacher Forced Ratings. In January 1972 the teacher was asked to divide her class into four equal groups and within each quartile to rank the students highest to lowest on a given quality. (See Sears, et al., 1972; and Crist & Marx, 1973). The Ss were given weighted scores according to their placement in the rankings.

TFR-1: ranking on physical development

TFR-2: ranking on emotional development, maturity

TFR-3: ranking on social development, interpersonal skills

TFR-4: ranking on academic-intellectual development

TFR-Total: the subject's overall ranking by the teacher as averaged across all four scales.

B. Behavioral Rating Forms. (See Appendix F.) In October, January, and March teachers were asked to indicate on a scale the frequency with which explicit behaviors occurred for each S in the Leadership Program. The items were grouped to measure areas of behavior similar to these areas of attitude on the self-report questionnaires. The subscales used in this study were:

Peer Relations: how well the S "gets along with" classmates

Relations with Adults: how well the S "gets along with" adults in school

Work Habits: evaluation of behavior during work periods in the classroom

Personal-Emotional Development: how well the S has developed self-control, shows respect for others, and evidences emotional stability.

IV. Social Measures

A. Peer Nominations. (See II. C., Power).

B. Self-rating on Social Relations. In February, the intermediate students were asked to complete a Social Distance Scale (see Sears, et al., 1972). This questionnaire required that the S list the names of classmates who fit each of four categories of friendship. Then the S was to predict how others would rate him. Three scores were derived:

Self-Rating: how the child perceived classmates would rate him.

Liking for Others: sum of nominations x weighting for each child's response to the class

Liking by Others: sum of nominations x weighting for each child as rated by classmates.

V. Observed Behavior (See Appendix G.)

An average of 300 rounds of time-point sampling of the S's classroom behavior was obtained four times during the period from October to March. The data were collected primarily for use in the study of 64 student leaders. Each behavior was classified as Constructive (appropriate for teacher goals), Destructive (interfering with teacher goals), or Passive (inactive, indifferent to classroom activity). The percentage of observed behavior which fell into each category was used to compute the correlations reported herein.

VI. Academic Achievement Scores (Crist et al., 1973)

Results from the October and May administration of the California Test of Basic Skills (CTBS) were used. Subscores were obtained for:

Verbal Achievement (VA): vocabulary, reading comprehension

Arithmetic Achievement (AA): overall arithmetic score (A-Con) arithmetic concepts, understanding (A-Comp) arithmetic computation, basic facts.

The first level of the investigation was conducted with the scores of 94 subjects from the original random sample for which there were no missing data. Pearson product-moment correlations were computed between TAMS scale scores and scores on the Self-Concept Inventory, the Locus-of-Control measure, Teacher Forced Ratings, the Social Distance Scale, and the annual standard achievement tests. The figures reported in the top half of Table 10 are correlations with fall external measures and those in the bottom half are correlations with external assessments obtained February and May. Only the results from the October administration were used. Therefore, the information in the top half of the table contributed to answering the question of concurrent validity. Correlations in the bottom half cannot be regarded as indicative of predictive validity because the intervention program occurred within the school during the year.

TABLE 10

Correlations Between TAMS and External Variables
(N = 94)

	SELF-CONCEPT										LOCUS-OF-CONTROL			ACHIEVEMENT			
	Total	Phys.	Appear.	Converg.	Soc.Rel.	Soc.Vir.	Diverg.	Work	Happy	Subj.	I-tot.	I+	I-	VA	AA	A-Comp[a]	A-Con[a]
Fall TAMS	Fall (October)																
Power	.20	.02	.13	.18	.06	.00	.11	.16	.13	.21	.01	.04	-.01	.22*	.09	.20	.04
																.21	.24*
Social	.20	.07	.18	.14	.18	.20	.08	.07	.11	.17	.12	.23*	.03	.03	.13	.17	.06
																.12	.13
Work	.06	-.07	-.15	.05	-.09	-.01	.09	.19	.12	.15	.05	.06	.03	.23*	.22	.24*	.11
																.32*	.18
Teachers	.00	-.19	-.04	.07	-.09	.01	-.07	.16	.00	.14	.08	.04	.07	.15	.17	.18	.05
																.27*	.16
Liking	-.24*	-.23*	-.11	-.22	-.20	-.10	-.28*	.03	-.06	-.17	.04	.14	-.02	.18	.21	.24*	.12
																.36*	.21
Total	.09	-.09	.00	.09	-.02	.05	.03	.16	.09	.18	.09	.14	.04	.24*	.23	.31*	.11
																.34*	.23
Fall TAMS	Winter and Spring (Feb. and May)																
Power	.12	-.09	.06	.12	.13	.10	.19	.11	-.01	.16	-.05	-.20	.03	.19	.12	.04	.20
Social	.27*	.23*	.21	.25*	.23*	.23*	.17	.23*	.26*	.18	.00	.11	-.01	.11	.10	.09	.08
Work	.18	.01	-.05	.12	.08	.20	.21	.30*	.22	.17	.08	.02	.10	.18	.21	.24*	.12
Teachers	-.01	-.24*	-.14	-.01	-.04	.11	.01	.13	.04	.10	.14	-.03	.17	.15	.11	.07	.12
Liking	.06	-.02	.00	.04	-.02	.07	.07	.04	.17	.11	.20	.20	.04	.22	.19	.17	.14
Total	.19	-.04	.00	.17	.14	.22	.21	.25*	.19	.22	.12	.02	.12	.26*	.19	.16	.16

	SOCIAL DISTANCE (Feb.)			TEACHER RATINGS (Feb.)				
Fall TAMS	S/R	LFO	LBO	1-Phys.	2-Emot.	3-Soc.	4-Intell.	5-Total
Power	.06	.07	-.04	-.02	.06	.07	.14	.09
Social	.01	.03	.04	.03	-.05	.01	-.07	-.03
Work	.11	.20	.08	-.02	.17	-.01	.22	.12
Teachers	-.02	.10	.12	.04	.13	-.08	.12	.07
Liking	-.06	.13	.10	.05	.14	-.12	.01	.02
Total	.05	.18	.06	.00	.11	-.06	.10	.05

*$p < .01$

[a]Top numbers are for October 1971, bottom for May 1971.

Criterion validity of subsample. The second level of the investigation used multiple measures obtained on the 64 student leaders only. This group of subjects was not independent of the first group; about half of them had been identified as members of the random set being used in the larger scope of the research project. However, the most extensive collection of data was from these 64 subjects. Some of the correlations of TAMS scores with external variables are reported in this section.

Sufficient data were collected to allow construction of a multitrait-multimethod matrix analysis (Scott, 1968) similar to that reported by Roshal, Frieze, and Wood (1971). However, some serious limitations on the study and restrictions on the data indicate that such an analysis would be more beneficial after data have been collected on samples from other populations. A limitation on the study is that the data were gathered on a small sample from a population with possibly distinct characteristics that limit generalizations and accurate interpretation. Constraints on the data include the results of factor analyses and computed reliability coefficients. The factor analyses did not confirm the validity of the theoretical scales and did not reveal more valid, unambiguous scales for use. All intercorrelations, of necessity, were calculated with the hypothesized subscales. Furthermore, the low reliabilities, especially between items intended to have the same meaning, suggest that subject response error may have substantially contaminated the data collected. The tables that follow (11-17) will provide correlational data that may be useful for comparison with the results of future research.

Tables 11-14 include variables intended to measure basically the same attributes: e.g., power, social relations, work habits, and teachers. Tables 15-17 show how the other measures intercorrelated also. In general there was little evidence that would permit confidence in the reliability of most of the measures. This was especially true of the measures of power. The most promising results were in relation to assessment of self-concept. (This finding is discussed extensively in Whitmore, 1973a.)

It seems most likely that error was introduced primarily from two sources: carelessness in responding owing to lack of interest, and inaccuracy caused by inexperience with self-reports, scaled responses, and critical thinking, as well as lack of reading skills and power of concentration. These hypotheses can only be tested by administering TAMS to samples from other populations.

In the correlational results presented in Table 11-17 one may find some evidence that the hypothesized scales have validity. Some significant correlations indicating concurrent validity are correlations of the TAMS Social subscale with the Sears Self-Concept Social Relations items (Table 11); TAMS Teachers with TAP Teacher (Table 12) and BFR Relations with Adults (Table 14); TAMS Social, Liking for School, and Total with October Peer Nominations for Social Influence (Table 13); and all TAMS scales with October Classroom Behavior (Table 17).

However, there was very little evidence of predictive validity--even though any found would have to be regarded as spurious because of the intervening influences of the year-long research projects in the school. TAMS Social scores in October did show possibilities of predicting February self-reports for Social Relations on the Sears measure and March teacher ratings on Peer Relations (BRF). The three TAP items seemed to predict February scores on TAMS Power.

Many inconsistencies in the results make definite statements of a general nature impossible. For example, fall scores on TAMS Power were negatively correlated with TAP questions, but spring TAMS Power scores were significantly correlated with two of the TAP items both fall and spring (see Table 16). Table 17 reveals no consistent relationship between self-report on TAMS and classroom behavior.

TABLE 11

Correlations Between TAMS and Two Self-Concept Measures
(N = 64)

TAMS Scale		Sears										Gordon			
		Social Relations		Social Virtues		Work Habits		Happy Qualities		Total SC		Special Focus		Total SC	
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
Power	Oct.	.27*	.09	.24*	.20	.24*	.13	.25*	.25*	.35**	.28**	.24*	.08	.24*	.16
	Feb.	.18	.27*	.04	-.03	.23*	.21*	.16	.20*	.30**	.15	.11	.04	.14	.07
Social	Oct.	.35**	.42**	.12	.33**	.27*	.35**	.19	.29**	.24*	.34**	.15	.25*	.31**	.20*
	Feb.	.36**	.28**	.22*	.26*	.17	.04	.30**	.26*	.19	.13	.08	.05	.06	.13
Work	Oct.	-.06	.15	-.05	.07	.23*	.26*	-.02	.11	.07	.10	.32**	.18	.32**	.14
	Feb.	.14	.21*	.10	-.01	.26*	.32**	.14	.30**	.26*	.20*	.28**	.16	.29**	.15
Teachers	Oct.	-.03	.09	.11	0	.31**	.27*	.09	.19	.17	.10	.33**	.08	.28**	.17
	Feb.	.04	.22*	.13	.08	.18	.41**	.13	.33**	.15	.27*	.13	.18	.21*	.13
Liking for School	Oct.	.10	.07	-.03	.06	.08	.09	.03	.16	-.12	.03	.06	.12	.11	.12
	Feb.	.15	.04	.16	.08	-.02	.08	.01	.16	.05	.12	.07	.05	.17	.12
Total	Oct.	.21*	.28**	.13	.24*	.37**	.31**	.19	.27*	.24*	.26*	.34**	.30**	.37**	.26*
	Feb.	.22*	.26*	.18	.09	.24*	.28**	.18	.31**	.26*	.21*	.19	.13	.25*	.13

*p < .05 **p < .01 df = 62

Note: Coefficients within boxes are convergent validity coefficients.

TABLE 12

Correlations Between TAMS and TAP (Efficacy Questionnaire)
(N = 64)

TAP Questions		Power		Social		Teachers		Total	
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
Kids Listen	Oct.	-.10	.33**	.09	-.03	.08	.19	.10	.21*
	Feb.	-.13	.28**	.09	.02	.06	.27*	.10	.27*
Teacher Helps	Oct.	-.03	.29**	.00	.16	.36**	.29**	.23*	.36**
	Feb.	-.10	.24*	-.03	.14	.10	.32**	.20	.41**
Principal Helps	Oct.	.14	.37**	.05	.18	.29**	.27**	.30**	.39**
	Feb.	-.14	.09	-.13	.05	-.02	.26*	-.11	.21*

*p < .05 **p < .01

TABLE 13

Correlations Between TAMS and Peer Nominations of Social Influence
(N = 64)

Peer Nominations	Power		Social		Liking		Total	
	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
October	.15	.27*	.29**	.22*	.28**	.27*	.36**	.38**
February	.03	.26*	.18	.19	.06	.19	.19	.29**

*p < .05 **p < .01

TABLE 14

Correlations Between TAMS and Teacher Ratings of Pupil Behavior (BRF)
(N = 64)

	TAMS: POWER		TAMS: SOCIAL	
BRF: Peer Relations	Oct.	Feb.	Oct.	Feb.
October	.15	.16	.24*	.13
January	.21*	.13	.13	-.05
March	.23*	.29**	.27*	.11
	TAMS: WORK		**TAMS: TEACHER**	
BRF: Work Habits	Oct.	Feb.	Oct.	Feb.
October	.16	.24*	.16	.25*
January	.18	.25*	.08	.29**
March	.07	.24*	.07	.29**
	TAMS: TEACHERS			
BRF: Relations with Adults	Oct.	Feb.		
October	.27*	.37**		
January	.24*	.27*		
March	.14	.29**		
	TAMS: TOTAL			
BRF: Personal-Emotional	Oct.	Feb.		
October	.26*	.25*		
January	.25*	.22*		
March	.25*	.24*		

*$p < .05$ **$p < .01$

TABLE 15

Correlations Between TAMS Total Scores and External Variables
(N = 64)

	TAMS	Peer Nominations		BRF: Overall			TFR: Intell.	Observed Behavior: % Constructive		Observed Behavior: % Destructive		Observed Behavior: % Passive	
	Feb.	Oct.	Feb.	Oct.	Jan.	Mar.	Feb.	Oct.	Feb.	Oct.	Feb.	Dec.	Mar.
TAMS													
Oct.	.45*	.36*	.19	.34*	.27**	.24	.18	.32*	.16	-.14	-.07	-.14	-.32*
Feb.		.38*	.29**	.24	.27**	.29**	.11	.05	.05	-.01	.09	-.14	-.22
Peer Nom.													
Oct.			.59*	.33*	.12	.24	.18	.12	.06	-.05	.03	-.01	-.02
Feb.				.46*	.29**	.40*	.29**	.18	.27**	-.17	-.18	-.02	-.09
BRF: Overall													
Oct.					.73*	.76*	.65*	.49*	.42*	-.57*	-.40*	-.37*	-.32*
Jan.						.91*	.64*	.34*	.57*	-.41*	-.54*	-.43*	-.37*
Mar.							.65*	.31**	.51*	-.39*	-.47*	-.41*	-.43*
TFR: Intell.								.40*	.35*	-.32*	-.28**	-.43*	-.50*
Constructive													
Oct.									.32*	-.70*	-.26**	-.27**	-.30**
Feb.										-.33*	-.87*	-.43*	-.24
Destructive													
Oct.											.36*	.05	.03
Feb.												.31**	.18
Passive													
Dec.													.37*

Levels of significance, one-tailed test, df = 60
*p < .05 **p < .01

TABLE 16

Correlations Between Multiple Measures
(N = 64)

A. Power, Efficacy

		TAMS	TAP						Locus-of-Control			
		Power	Kids Listen		Tchr Helps		Principal		I-Failure		I-Total	
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
TAMS: Power	Oct.		.14	-.10	-.13	-.03	-.10	.14	-.14	-.09	-.13	-.09	-.21
	Feb.			.33	.28	.29	.24	.37	.09	-.06	-.17	-.03	-.08
TAP: Kids Listen	Oct.				.65	.21	.36	.21	-.12	-.14	0	-.17	.12
	Feb.					.30	.32	.04	.09	-.08	.07	-.06	.25
Teacher Helps	Oct.						.12	.27	.24	-.03	-.07	-.03	-.01
	Feb.							.23	.11	-.15	-.13	-.13	.02
Principal Helps	Oct.								.24	-.27	-.34	-.29	-.30
	Feb.									-.07	.07	-.13	.03
Locus-of-Control:	Oct.										.35	.95	.24
I-Failure	Feb.											.33	.88
I-Total	Oct.												.22
	Feb.												

.21 = p < .05
.30 = p < .01

B. Social Relations with Peers

Ratings by:		SELF TAMS		Sears		PEERS		TEACHER BRF	
		Social		Soc. Relations		Nominations		Peer Relations	
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
TAMS: Social	Oct.		.36	.35	.42	.29	.18	.24	.27
	Feb.			.36	.28	.22	.19	.13	.11
Sears: Soc. Rel.	Oct.				.31	-.02	-.03	-.04	-.06
	Feb.					.21	.27	.29	.24
Peer Nominations	Oct.						.59	.35	.28
	Feb.							.47	.42
BRF: Peer	Oct.								.62
	March								

.21 = p < .05
.30 = p < .01

C. Attitude Toward Work

Ratings by:		SELF TAMS		Sears		TEACHER BRF		TFR
		Work		Work Habits		Work Beh.		Acad.
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.	(Jan.)
TAMS: Work	Oct.		.43	.23	.26	.16	.07	.18
	Feb.			.26	.32	.24	.24	.17
Sears: Work Habits	Oct.				.40	.39	.43	.32
	Feb.					.41	.47	.27
BRF: Work Beh.	Oct.						.78	.61
	Feb.							.67
TFR: Academic	Feb.							

.21 = p < .05
.30 = p < .01

D. Attitude Toward Teachers

Ratings by:		SELF TAMS		TAP		TEACHER BRF	
		Teachers		Teachers		Rel. with Adults	
		Oct.	Feb.	Oct.	Feb.	Oct.	Feb.
TAMS: Teachers	Oct.		.31	.36	.10	.27	.14
	Feb.			.29	.32	.27	.31
TAP: Teachers	Oct.				.12	.03	-.05
	Feb.					.23	.26
BRF: Rel. with Adults	Oct.						.73
	Feb.						

.21 = p < .05
.30 = p < .01

TABLE 17

Correlations Between TAMS Scales and Observed Behavior
(N = 64)

TAMS Scale		Type of Classroom Behavior											
		Destructive				Constructive				Passive			
		1	2	3	4	1	2	3	4	1	2	3	4
Power	Oct.	-.22*	-.04	-.31**	-.23	.26*	.05	.19	.32**	-.11	-.05	.14	-.25*
	Feb.	.13	-.13	.02	-.06	-.04	.15	-.04	.20	-.08	-.07	.04	-.26*
Social	Oct.	-.05	-.08	.08	.11	.20	.07	-.05	.11	-.22*	-.02	-.03	-.31**
	Feb.	.01	-.14	.10	.02	-.05	.14	-.08	.07	.06	-.05	0	-.14
Work	Oct.	-.06	-.08	.05	.07	.26*	.11	.15	.03	-.29**	-.10**	-.38	-.13
	Feb.	0	-.05	.04	-.06	.08	.16	.08	.17	-.11	-.18	-.23*	-.21*
Teachers	Oct.	-.17	-.06	-.06	-.05	.25*	0	.14	.13	-.17	.06	-.17	-.16
	Feb.	-.10	-.23*	-.08	-.12	.07	.25*	.19	.11	.02	-.10	-.24*	-.04
Liking	Oct.	-.15	-.09	.05	.13	.28**	.16	.07	-.01	-.23*	-.17	-.24*	-.16
	Feb.	0	.11	.21*	-.06	.03	0	-.03	.13	-.05	-.12	-.30**	-.13
Total	Oct.	-.14	-.10	-.07	.02	.32**	.15	.16	.18	-.30**	-.14	-.21*	-.32**
	Feb.	-.01	-.13	.09	-.09	.05	.19	.05	.20	-.06	-.14	-.23*	-.22*

*$p < .05$ **$p < .01$

Note: The observation data were gathered in October (1), December (2), February (3), and March (4).

Discrimination between groups. Another source of validation for an instrument is the ability of its results to discriminate between groups. It was hypothesized that of the 163 subjects in the large random sample whose scores were usable, there would be significant differences between boys and girls and between students in the three grades. Null hypotheses were stated for comparisons over the five months, fall and winter, and for the interaction of sex x teacher group x time. The teacher group refers to a division of the eight intermediate teachers into two sets: Teacher Group 1 was more supportive of students assuming leadership and self-direction, and Teacher Group 2 was less willing to release control and to encourage student decision making (see Whitmore, 1973 a & b). Table 18 gives the F-statistics for ANOVAs (BMD-X63, Dixon, 1970) computed to test the hypotheses. Table 19 reports means and standard deviations for the significant ANOVA results. The tables indicate that TAMS scales and total scores are useful in distinguishing between groups of subjects. Most null hypotheses were rejected for comparisons based on the variables of sex and grade. The three-way interaction (sex x teacher group x time) was significant only for the reported attitude toward teachers.

TABLE 18

F-Statistics for ANOVAs Testing for Differences Between Groups
(N = 163)

TAMS Scale	Time	Sex	Sex x Time	Grade (Oct.)	Grade (Feb.)	Grade x Time	Tchr Grp x Sex x Time
Total Score	.75	23.54**	.13	146.72**	124.54**	2.11	.24
Power	.19	21.03**	.12	87.28**	127.45**	1.06	1.04
Social	.22	7.42**	.50	115.78**	98.26**	.64	.31
Work	.19	10.84**	.10	102.81**	88.64**	.70	.55
Teachers	1.34	31.47**	3.03	115.92**	61.30**	9.10**	3.53*
Liking for School	.08	6.99**	.09	88.87	64.86	.29	.47

Note: df = 1, 159 except for Teacher Group x Sex x Time, for which df = 2, 159.

*p < .05
**p < .01

TABLE 19

Means and Standard Deviations for Significant ANOVA Results
(N = 163)

Subject Characteristics	Power		Social		Work		Teachers		Liking		Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Sex												
Males (N=94)	19.46	3.29	18.95	2.94	21.74	4.30	19.87	3.61	12.53	2.98	117.54	15.11
Females (N=69)	20.38	3.85	18.51	3.16	23.09	3.72	21.07	3.17	12.75	2.79	122.26	14.32
Grade (Oct.)												
Fourth (N=51)	20.28	3.78	19.06	3.16	22.04	3.62	20.06	3.25	12.25	3.14	119.28	14.60
Fifth (N=49)	19.82	2.77	18.53	2.81	23.04	3.43	21.26	3.24	12.90	2.78	121.63	12.98
Sixth (N=63)	19.52	3.91	18.70	3.12	21.97	4.88	19.95	3.74	12.71	2.78	118.13	16.55
Grade (Feb.)												
Fourth (N=51)	19.14	3.30	18.51	3.37	20.76	4.85	19.94	3.91	10.94	3.55	114.28	17.65
Fifth (N=49)	20.39	3.92	19.06	3.04	23.35	4.03	20.20	4.12	12.76	3.54	121.80	17.53
Sixth (N=63)	19.57	2.98	18.40	3.43	21.57	4.29	19.18	3.97	11.30	2.70	113.95	13.44
Teachers												
Group 1 (N=90)	20.21	3.35	18.81	3.21	23.01	3.80	21.13	3.35	12.78	2.73	122.02	15.12
Group 2 (N=73)	19.40	3.76	18.70	2.82	21.45	4.33	19.45	3.41	12.44	3.09	116.48	14.19

Another test of validity was provided by the study of student leaders. Teachers had classified these subjects as either basically positive or basically negative in their attitude toward school. If the teachers judged accurately and the responses on TAMS were valid, the two groups of leaders should report significantly different attitudes on the TAMS scales--especially on the total score, which is most inclusive, and on the scales Work and Teachers, which are most closely related to classroom behavior. The differences should support the hypothesis that Positive leaders are consistently more positive in their attitudes toward school and thus produce much higher scores on TAMS than do leaders classias Negatives. Table 20 reports evidence that the hypothesis can be accepted at the .01 level of significance.

TABLE 20

Means, Standard Deviations, and Tests of Significance for "Positive"and "Negative" Leaders (N = 64)

		Power	Social	Work	Teacher	Liking	Total
Positives	$\bar{X}$	20.88	19.02	23.69	21.00	13.27	124.59
	S.D.	2.61	3.35	4.04	3.38	3.02	15.77
Negatives	$\bar{X}$	19.39	18.12	20.47	18.58	12.50	113.00
	S.D.	3.97	3.50	3.82	3.64	3.17	14.78
t value		1.77*	1.06	3.29**	2.75**	1.00	3.03**

Critical t values: one-tailed test, df = 60
*p < .05 **p < .01

Summary of tests of validity. In spite of low reliabilities, TAMS scale scores and total scores were useful in discriminating groups of subjects who had been identified informally by teachers and researchers as differing in their attitude toward school. Perhaps the failure to obtain clearer results from intercorrelations with other measures of attitude is largely related to the fact that low reliabilities frequently existed within the comparative instruments as well as within TAMS (Sears et al., 1972; Crist et al., 1973). The existence of low reliabilities is common to psychological measures of attitude, a fact which makes validation a very difficult challenge to the researcher. In many ways, the results obtained with the TAMS inventory are typical of those found with most self-report measures. However, the investigator is sensitive to the evidence of undesirably large response error, which perhaps is tied to specific characteristics of the population from which the sample was drawn. Therefore, it seems wise to delay conclusions about the reliability and validity of TAMS until data can be collected and analyzed from other samples in varying conditions. Researchers are urged to employ the multitrait-multimethod design in their study.

Potential Uses of TAMS

The value of the instrument has been considered from the perspective of evaluating a research tool. However, it is important that other pragmatic uses of the information obtained through TAMS be recognized. Five specific uses of the results in a school or district seem worth mentioning.

1. To assist faculty and administration in evaluating their programs and teaching. Histograms or bar graphs of results are effective means of stimulating faculty problem-solving sessions.

2. To provide student leaders, or any group of interested students, with information helpful in studying school problems. This is especially true in schools where there is a desire to change attitudes and to generate pride and high morale.

3. To stimulate classroom analysis of problems or discussions of attitudes and behavior at school.

4. To evaluate the effects of school experiences over a year, fall to spring. This might be the project of the faculty, a group of student leaders, or a class. It would be most valuable where efforts had been made during the year to improve individual and group attitudes.

5. To help teachers increase their understanding of pupils, as a group and individually. Profiles of individual scores may promote teacher insight into problems and may provide clues as to effective methods of correcting undesirable situations. The teacher may also use results to counsel individuals effectively or to discuss with the class methods of improving life at school so that learning would be more enjoyable and rewarding.

When TAMS has been sufficiently field tested and modified to improve its value in varying situations, the inventory should be made available to teachers for the type of use described above. Explicit guidelines for teacher use would have to be included in a manual for teachers and administrators.

The reader is reminded that this memorandum reports the development of TAMS and the first attempt to assess its reliability and validity. The sample size was smaller than desired and the population had

characteristics probably limiting the generalizability of results and the ability of the investigator to interpret findings accurately. However, the results suggested that TAMS merits further research use and evaluation. The purpose of this report is to generate interest among fellow researchers and to provide helpful samplings of data for their use.

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